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General Articles

ACETYLCHOLINE: A PERISTALTIC HORMONE

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The presence or absence of intestinal motility in cases of abdominal pain, particularly in the horse, is always a question of importance since its continued absence for any length of time becomes a matter for grave concern, and to know when it is safe to try to increase it by specific means is one of the main problems in treatment.

There is no doubt that greater caution is now observed in administering arecoline and eserine or other excito-motors to the bowel than was the case some years ago. The uncertainty in their satisfactory use arises from the difficulty in diagnosing sufficiently early the nature of the lesion causing the pain and obstruction, such as whether it is mechanical or dynamic. Their use in the former hastens the end and in the latter is often unsatisfactory on account of subsidiary effects. By dynamic obstruction is meant bowel obstruction due to a paralytic or spasmodic condition of the bowel wall and which interferes with the power of transmitting onwards its contents.

Some time since I obtained a supply of acetylcholine through Willows and Co., from the British Drug Houses. It was not intended to publish any observations on its action until after an extended trial, but the appearance of the article by Dr. Paul Behn (translation) in *The Veterinary Record* for March 31st: "Prognostic Signs in Equine Colic," suggested that a few remarks on the subject might be interesting, since one of the choline derivatives (which has been given the name of "lentin") was there mentioned as having received a good deal of notice in recent German literature. It is stated that neither are there immediate depressing effects on the heart nor does the patient remain in a depressed state for several days after its use. This statement, however, requires some modification as in two of our cases unpleasant effects were noticed although they quickly passed off.

Magnus, of Utrecht, regarded choline as a peristaltic hormone and in 1926 Wolf and Canney drew attention in *The Lancet* to their own results in the treatment of ileus by choline or its ester. This paper suggested to me the possible uses of the latter in equine medicine, but no opportunity occurred of acquiring the substance until recently. In *The Lancet* of December 2nd, 1933, Mr. Lawrence Abel, F.R.C.S., contributed a paper which dealt fully with the anatomical, physiological and pathological aspects of peristalsis and intestinal paralysis, and the uses of acetylcholine in retention of fæces and flatus. This paper should be read by those interested. Chlorine and acetylcholine (its derivative) are biochemical substances normally present in the intestine and perhaps in all tissues. Its history in the body closely resembles that of histamine. It is almost certain that post-ganglionic parasympathetic (Vagus) and some other nerve fibres act only in virtue of local liberation of acetylcholine (Dale and others). Eserine is said to cause a very remarkable sensitisation of muscle to acetylcholine. Bile appears to be decomposed in the large intestine into glycero-phosphoric acid and choline, and thus a supply of the latter should always be available for conversion to its acetic ester acetylcholine, but the latter seems also to be produced in the tissues themselves. Trauma or other depressing influences affecting the bowels or other parts may be associated with a relative or absolute diminution in the acetylcholine content of the bowel wall and in such instances relief may be obtained by administering it. Abel puts the matter as follows:—

(1) Acetylcholine is essential for intestinal peristalsis.

(2) Factors which produce paresis or paralysis of the intestines do so by either (*a*) diminishing the intestinal content of acetylcholine or (*b*) increasing the threshold of the nerve impulse, thus rendering the normal quantity of acetylcholine insufficient.

(3) The administration of acetylcholine is, therefore, the correct treatment for these conditions.

Biochemical substances produced by the body itself are regarded by many as the most likely source of efficacious remedies in the future and auto-pharmacology has become a recognised branch of science. Such substances may be produced by a gland and having a general action, or they may be produced in different situations or tissues and having a more or less local action. Adrenalin and pituitrin are examples of the former kind, while histamine or H substance,

lysozyme, and acetylcholine belong to the latter, and the number of such substances isolated seems ever increasing. Drugs of the nature of arecoline and eserine are unfortunately depressant to the heart as well as being motor to the bowel and there would seem a doubt as to whether they are of any use at all in the absence of acetylcholine from the bowel wall itself and in such cases might do harm. The combination of acetylcholine with a small dose of eserine is suggestive.

As to dosage of acetylcholine for horses, nothing of course was known, but in man as much as 0·6 g. has been given at a single injection in a severe case of ileus, but usually 0·19 is given hourly up to six doses or until the bowels act or flatus is expelled. The B.D.H. now supply 20 c.c. bottles containing about 30 grains of the substance in stable solution for hypodermic or intra-muscular injections. At present I am inclined to think that 5 c.c. of this solution should be given and repeated at frequent intervals until borborygmi are established or relief obtained. Its effects can thus be watched, for experience indicates that even 5 c.c. may produce marked peristalsis, and that its effects are not altogether dependent on the quantity injected. It is remarkable that a dose of 1 gramme, *i.e.*, less than double that which has been given to a man, should produce intensive peristaltic action in a horse. The extraordinary development of the large intestine in this animal would indicate that its peristaltic government must be very highly organised and the retentions and impactions so frequently met with may be regarded as an expression of its failure or breakdown, since there is usually in such cases suppression of sounds or changes in their normal quality or volume. Although, as above indicated, mechanical conditions are hopeless, acetylcholine may open up a new chapter in the treatment of what might be termed " the acute abdomen " in the horse, but one can make no definite recommendations at present, since everything is in the experimental stage.

Cases

Case 1.

A mare had passed no fæces for two days. Peristalsis appeared absolutely in abeyance and the abdomen was becoming gradually distended, but no impaction could be palpated. Pulse feeble, frequent and very difficult to count. The state of the circulation suggested danger from arecoline, etc. The pain, at first severe, was absent. Acetylcholine (0·5 g.) induced peristalsis in 15 minutes. Borborygmi could be distinctly heard while giving liquid paraffin Oiv by tube. The mare showed some restlessness. The following morning the bowels had acted and the meteorism had gone.

Case 2.

Shire mare, four years. In severe pain in a field at 6.30 a.m., and had obviously been so for some hours. She was sitting on her haunches, exhibiting sweating and tremors, and was got indoors with difficulty. Her history on the previous day was unsatisfactory. She had visited a stud horse some miles away and the groom had tried to dilate the os for some unknown reason; in addition, she had been given an amount of corn. Seen at 10 a.m. her condition was grave. Pulse 100, breathing hurried, in continuous pain, great depression, tympany, attempts at vomition, no peristalsis nor passage of flatus. Stimulants and anti-tympanitics gave no relief. 11.30—Acetylcholine, 18 grains, given hypodermically. Ether and liquid paraffin by tube. The case seemed almost hopeless. 1.15 p.m.—the mare had passed four lots of fæces and much gas and there was an all-round improvement. The stomach, however, continued to give trouble, and there was a rush of fluid through the nostrils on three or four occasions during the day. Tube passed at 4 p.m. and at 7 p.m., gas and fluid escaping on each occasion. A good deal of borborygmi noted. A second dose of acetylcholine (15 grs.) was given at 4 p.m.; it seemed to have little or no effect, but did no harm. During the next 24 hours the mare was comfortable, the bowels acted well and she took some food, but laminitis supervened on the third morning. The first dose of acetylcholine seemed to have had a dramatic effect on an otherwise very complicated case.

Case 3.

A small cob had consumed a quantity of grain maize and was in great pain. Antispasmodics with oil and liquid paraffin were given by mouth and 15 grs. of acetylcholine hypodermically. Borborygmi were soon noticed and fæces passed in 20 minutes. No further treatment required. The dose of acetylcholine seems to have been rather large considering the size of the animal and the experience in the next case, but it caused no ill effects.

Case 4.

A big horse in pain following a hard day on the land. Pain continued with an increasing meteorism, no bowel movements to be heard. The animal had been ill about four hours and had received some colic draughts. Acetylcholine (15 grs.) given. In about 15 minutes the pain became so severe that it was necessary to take the horse into a field, sweating, groaning and straining, the condition being alarming for about 20 minutes. It was decided to give a dose of

chloral, but while it was being administered the patient seemed to quieten down and gas was passed and then began the most astonishing series of noises I ever remember hearing from the bowels of a horse. During the intense borborygmi the animal stood quite at ease and required no further treatment.

Case 5.

A case much like the last; a hard day in the field and evening colic. Abdomen gradually filling. Ill four hours. No peristalsis, pain continuous. Oil and liquid paraffin and antispasmodics given. Acetylcholine (7½ grs.); salivation as with arecoline; peristalsis noted in 15 minutes, but being feeble at the end of 30 minutes a further injection of 7½ grs. was made. At the end of one hour borborygmi were marked, gas and fæces were passed and no further treatment was required.

Case 6.

A farm horse. Colic impaction ten days earlier. Was noticed ill at 6.30 a.m. Some pain and tympany. No borborygmi nor fæces passed. Frequent respirations, cold extremities, and a very dejected appearance. The pulse, however, was 50 and fairly good —a saving aspect in the prognosis, which otherwise seemed bad. Liquid paraffin (40 ozs.) with antispasmodics were administered by tube and 7½ grs. of acetylcholine given hypodermically. In 15 minutes the horse commenced bobbing his head up and down and muscular tremors were noted. There was some peristalsis but the peculiar movements of the animal caused some anxiety, being apparently due to the injection. Nothing further was given. The owner reported: "For two or three hours after you left I would have given nothing for him, but then his bowels began to act and there was a terrible row in his inside. It seemed as if one pot was chasing another, and by the evening he was quite well and anxious for food."

This series of cases, of course, may mean nothing. It will require the experience of many practitioners and a large number of cases before any definite conclusions can be arrived at as to the value of acetylcholine in animal medicine, but I am inclined to think it will have important uses.

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CHEMICAL TRANSMISSION OF THE EFFECTS OF NERVE IMPULSES

Since the above notes were written the Linacre Lecture has been delivered at Cambridge by Sir Henry Dale, F.R.S., and appeared in the *British Medical Journal* of May 12th, 1934. Dealing with the chemical transmission of the effects of nerve impulses, practically the whole of the lecture was devoted to acetylcholine and its action in connection with the parasympathetic, as compared with that of adrenalin on the sympathetic, these substances occupying a similar position in regard to the two systems of the autonomic nerves. Dale found acetylcholine in amount in the spleen of the horse and ox: "Neither in the spleen of the large ungulates nor in the human placenta does its occurrence in large amounts have any obvious relation to the action of parasympathetic nerves or to any other known physiological action. We may reasonably hope that the meaning of its presence in such organs will some day be revealed and meanwhile we may be satisfied with the evidence that acetylcholine is a normal product of the animal body and that there is no reason on that account for suspecting that the choline ester transmitting parasympathetic effects is any other than this one."

Dale regards acetylcholine and adrenalin as chemical transmitters of nerve impulses and is of opinion that there is a broad correspondence between them in chemical function and anatomical origin; he concludes that the cholinergic mechanism is an earlier one in evolution than that of the adrenal and "that in it will be found a mechanism which is beginning to have a much wider application in physiology than could have been suspected even a few months ago." He explains the synergic or sensitising action of eserine on acetylcholine by the fact that it inhibits the action of a blood esterase which normally destroys the latter when it has transmitted the impulse or has "fired its shot," so to speak. It would be interesting to observe the effects of administering eserine conjoined with acetylcholine in the early stage in certain cases of grass sickness in horses, presuming that this disease is of the nature of an entero-toxæmia.

MILK FROM ACCREDITED HERDS

"It is unfortunate that the critics of the accredited producers' scheme have not informed themselves more fully of the policy underlying the Milk Board's present scheme," says *The Times*. "The problem of raising the standard of purity and the good name of the milk supply must be tackled by stages. The accredited scheme is the first step, and when this standard has been achieved by the majority of milk producers, it will be practicable for the Milk Marketing Board to proceed to adopt such a policy as the Cattle Diseases Committee of the Economic Advisory Council have proposed. This advocates that no milk should be sold on the liquid market which does not attain a prescribed degree of cleanliness.

"To propose now to impose on all milk producers the regulations which will ultimately be necessary to satisfy medical opinion would condemn an improvement scheme, at the outset. Since the common aim is to raise the standard of purity and increase the consumption of liquid milk it is to be hoped that agreement may speedily be reached on the steps that are practicable immediately as well as on what is ultimately desirable."

THE TUBERCULIN TEST

Some Field Experiences in the Testing of Pure-Bred Cattle for Export

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PERTH

The tuberculin test has always been a source of anxiety to the breeders of pure cattle and nearly every season there are a few reactors among the young stock being prepared for sale.

In these herds the prevailing practice is to test the bull and heifer calves when they are brought in and housed during the late autumn. The animals that pass this preliminary test are kept in special boxes and are brought on by the use of two foster cows and feeding with eggs, malt, etc. Should they fail to suckle sufficiently they are even drenched daily with milk. The foster mothers or cows are seldom tested for tuberculosis and many are affected with that disease.

In December the calves selected for sale are re-tested by the owner's veterinary surgeon and if they pass, the charts obtained appear in the sale catalogue. If any of the calves fail this test, they are generally given a further re-test prior to the sale and should they then pass, the charts are posted up in the Mart alongside the animals concerned.

In a large herd it is occasionally difficult to get all the calves with normal temperatures and the test may be delayed in consequence. Too high an evening temperature—due to over-feeding, or a heavy close atmosphere at that time of the year—makes the animals perspire and they look unfit. Cold dry weather is the typical weather for these tests.

During the sales many of the bull calves are sold at prices up to £1,000 and much higher—depending upon the demand, and the pedigree of the animal. They are generally bought for export, principally to the Argentine, and are usually sold subject to a re-test at the owner's or seller's premises. After the sale they are taken home, kept under normal conditions as before, and if they do not develop any illness as a result of the sale, etc., they are re-tested within three weeks.

At the moment there is no restriction on the sale of tuberculin; it is quite easily obtained and there is therefore nothing to prevent a breeder giving the sold bull calves a dose of tuberculin on arrival home, in the hope that this will help them to pass the re-test. Many of these animals, sold at fancy prices, are insured for the re-test.

Effects of Frequent Re-Testing.—When the official re-test is made after the sale, one often finds oneself in an uncertain position and it may be rather difficult to decide if an animal is a reactor or not.

In order to obviate this and with the knowledge that all these animals have had a previous experience of tuberculin, it was decided some years ago to increase the dose of tuberculin given at the re-test.

The method adopted was to give three doses of Pasteur tuberculin, *i.e.*, 12 c.cs. as the initial dose, and a further two doses = 8 c.c., at the ninth hour of the test. As a result, many bulls that had charts at the sale were found to be reactors and thereby saved losses in the Argentine. This test was called the " Argentine Test," and is combined with the " Ophthalmic Test " where " Bruta Tuberculin " is instilled.

Unfortunately the losses in the Argentine began to increase and it was resolved that a further increase of the dosage in the re-test was necessary.

" THE SUPREME ARGENTINE TEST "

The new test was named as above and consisted in the usual ophthalmic test and the inoculation of the animal with five doses of Pasteur tuberculin = 20 c.cs. initial, with the administration at the ninth hour of a further 20 c.cs. of tuberculin.

These drastic doses of tuberculin appear somewhat heroic for young bulls, probably just yearlings, and care had to be taken to impress the seller that the method was harmless as it was thought by some that such a huge inoculation would make any animal react, due to tuberculin poisoning. It was even suggested that injections of ordinary water would yield reactors.

The " Supreme Argentine Test " (hereafter referred to as the " S.A. Test ") necessitated the taking of temperatures every hour for 24 hours as we did not know if a reaction would occur early or late in the period. Experience has since shown that after the initial inoculation, nothing will be missed during the first seven hours and the matter of taking temperatures is accordingly left entirely in the hands of the veterinary surgeon employed. The usual practice is to take frequent temperatures after the seventh hour and if the curve is a rising one, the temperature should be taken every hour or half-hour till one is satisfied one way or another.

Preliminary Experience with the S.A. Test.—My first experience with the S.A. Test was with two Aberdeen-Angus bulls. They had been several times tested and they were sold for export subject to passing the S.A. Test

The charts are as follows:—

No. 1. A.-A. Bull. January, 1924. S.A. Test + Eye.

Temp. °F.	101	100·8	101·6	102·4	102·6	102
Hours	1	2	4½	6	7½	9
	101·9	102·4	103·2	103·4	103·5	104
	11	12	13½	14½	15	15½
Temp. °F.	103·6	103·6				
Hours	16½	17½				

No. 2. A.-A. Bull. S.A. Test + Eye.

Temp. ° F.	101·6	101·6	101·8	101·8	102	102
Hours	1	2	4½	6	7½	9
	102·4	102·4	102·2	102·4	103	103·2
	11	12	13½	14½	15	15½
Temp. ° F.	103	104·2				
Hours	16½	17½				

These two animals gave positive reactions and were rejected for export. As a rule, any animal with a chart touching 103°F. with the S.A. Test is rejected for export.

These charts, under ordinary circumstances, would have been classified as doubtful but in view of the animals' past experience of tuberculin they were considered to be "doped bulls."

The difficulty was to obtain confirmation of the conclusion that a gradually rising chart and one not rising too high, is to be associated with doped animals.

Many similar charts had been noted during 1924 and my suspicions were confirmed with the following chart:—

No. 93. Clipper. S.-H. Bull. June 29th, 1925

Temp. F.°	102·7	102·3	102·2	101·8	102	102
Hours	1	3	5	7	9	11
	102	102·3	102·6	102·6	102·6	102·7
	13	15	16½	17	18	19
	103·2	103·4	103·6	103·3	103·7	103·4
	20	20½	21	21½	22	23

A gradual rise in temperature from the seventh hour to the 22nd, when it reached the maximum, classified the animal as doped and although the maximum rise of temperature was only 0·8°F. it was decided that the animal had failed to pass the test.

The seller of this bull informed me, a few weeks later, that he had purposely given this animal one dose of tuberculin (4 c.cs.) two days prior to the re-test and that the bull was a known reactor.

This was the information I had so much desired and on referring to my Chart Books many previous charts were selected and placed in category "D"—"Doped."

The undernoted charts are examples:—

Shorthorn No. 51. Prince. S.A. Test.

Temp. ° F.	101·6	101·5	102	102	102	102
Hours	1	3	4½	6	7½	9
	102	102·2	102·4	103·6	104	104·3
	10½	12	13½	15	16	16½
	104·2	104·3	104·2			
	17	17½	18			

Shorthorn No. 69. Peer. S.A. Test.

Temp. ° F.	102·6	102·2	102·5	102·6	102·6	102·1
Hours	1	3	4½	6	7½	9
	102·6	103·5	103·6	104·6	104·7	104·4
	11	13	14	15	16	17
	104·2	103·7	103·6			
	18	19½	21			

An interesting case is Eliza, No. 11A. This shorthorn cow was tested with one dose of tuberculin (4 c.cs.) and gave the following chart:—

Temp. ° F.	102·6	102·4	102·2	102·3	102·6
Hours	1	12	15	18	21

It was considered that this chart was too regular and after an interval of four weeks a re-test with 12 c.cs. of tuberculin was given, with the following result:—

Temp. ° F.	102·4	102·4	103·2	103·2	103	102·8
Hours	1	3	7½	9	12	15
	102·4					
	18					

Six weeks later the S.A. Test was applied and the following chart obtained:—

Temp.° F.	102·6	102·8	102·2	102·2	102·4	103·8
Hours	1	3	6	9	12	15
	106	106·5				
	18	21				

Maximum rise, 3·9° F.; fall, 0·4°F.

It can therefore be assumed that if a reactor is given repeated doses of tuberculin, the subject will become a doped animal, giving a delayed reaction to the S.A. Test and showing a gradual rise in temperature.

Another difficulty that occurs in this work is presented by the chart that is too level—with little or no variation. Exporters will not purchase animals where the charts show no variation. As a rule, animals concerned fail to pass a further re-test.

The charts shown of Nos. 145 and 146 are examples (November 1st, 1926):—

No. 145. Shorthorn Bull. A. Test. 3×2.

Temp. ° F.	102	102·4	102·8	102·4	102·6	102·6
Hours	1	3	6	9	12	15
	102·6	102·4				
	18	21				

No. 146. Shorthorn Bull. A. test. 3×2.

Temp. ° F.	102	102·6	102·8	103·2	103	102
Hours	1	3	6	9	12	15
	102	102·4				
	18	21				

These animals were doubtful at the above test and a re-test with the S.A. Test was carried out on December 31st, 1926, with the following result:—

No. 145.

Temp. ° F.	102·6	102·8	102·4	102·1	102·4	104·8
Hours	1	3	6	9	12	15
	105·4	105·4	105·6			
	16	17	18			

No. 146.

Temp. ° F.	102·4	102·4	101·6	101·4	102	103
Hours	1	3	6	9	12	15
	103	104	104·1			
	16	17	18			

These charts show that the animals were typical reactors, and they were rejected for export.

One can draw conclusions from the above and it is known that they were doped for the re-test.

A further example is that of an Aberdeen-Angus bull which was re-tested for export and

the chart shown read 102°F. all through without any variation.

Two days prior to movement for shipment it was decided to re-test this bull with the S.A. Test. The evening temperature of the animal at 7.30 p.m., was 102·8°F. and at 10.30 p.m., 103·2°F. As time was short, the intradermal and ophthalmic tests were applied and next morning at 6.30 a.m. the temperature of the bull was 101·6°F., when the S.A. Test was begun and the following chart noted:—

Temp. ° F.	101·6	101·6	101·8	102·8	103·2	104
Hours	1	3	6	9	12	13½
	104·5	104·7	103·7	102·8		
	15*	16½	18	19½		

(*Local reaction, 5″×5″.)

The ophthalmic and intradermal tests were both positive and the animal was returned to the seller as a definite reactor. With the original re-test this bull would have been exported and destroyed in the Argentine for tuberculosis.

There are other methods one can adopt in these Argentine tests and in a disputed case I invariably apply the following combined test.

The animal in dispute is tested in the usual manner with the S.A. Test, combined with the intradermal, sub-palpebral and ophthalmic tests, and given a control test on the opposite side of the neck.

No. 334. Shorthorn bull is an example and reacted as follows:—

Temp. ° F.	100·8	101·4	101·7	102	103·6	105·2
Hours	1	3½	4½	6	9	10½

Dosage 20 c.cs. Pasteur tuberculin.

Result.—A positive test with a local reaction at the seat of S.A. Test inoculation.

Ophthalmic test	...	Positive.
Palpebral test	...	do.
Intradermal test	...	30 m.m. at 24th hour.

With every possible care taken in these S.A. Tests, occasionally animals are found to be reactors in the Argentine and it is difficult to account for this, unless the bull becomes infected prior to or immediately after the re-test.

No. 580. Shorthorn Bull

Gave the chart noted on re-test in this country and was destroyed in the Argentine as a reactor.

Temp. ° F.	101·8	101·8	101·2	101·4	101·6	101·8
Hours	1	3	6	9	12	15
	101·6	101·8				
	18	21				

This appeared to be quite a good chart and with a little more variation in the temperature it would have been the type of chart one wished for.

My suspicions were aroused because this bull had been at the sale with Nos. 577 and 583, and was standing between those two at the time of the sale and re-test.

These two bulls (577 and 583) gave the following reaction during their re-test:—

No. 577.

Temp. ° F.	102	101·6	101·8	101·6	101·2	101·8
Hours	1	3	6	9	12	14
	102·5	102·4	104·4	105	104·3	
	15	16	17	18	21	

No. 583.

Temp. ° F.	102·4	101·6	101·8	102·8	103	103
Hours	1	3	6	9	12	14
	103·3	102·6	103·6	105	103·8	
	15	16	17	18	21	

In view of these results, it was suggested that No. 580 be isolated in neutral premises and re-tested in one month.

Unfortunately the space had been booked on board ship; the buyer accepted the chart and the animal was exported with the result mentioned—destroyed as a reactor in the Argentine. There is no doubt that this animal had been infected by the other two reactors or on board ship.

"Highland Cattle" are generally supposed to be remarkably free from tuberculosis and experience of those animals, as shown in the following charts, provides an interesting commentary on that opinion:—

No. 382. Siuna. 20 c.c. dose.

Temp. ° F.	102·2	100·6	106·4
Hours	1	9	12

No. 387. Iain Buidhe. 20 c.c. dose.

Temp ° F.	101·5	101·4	102·6	104·2	105
Hours	1	9	12	15	18

No. 390. Stella. 20 c.c. dose.

Temp. ° F.	102·4	101·8	103·4	105	103
Hours	1	9	12	15	18

No. 86. Rudhe. 20 c.c. dose.

Temp. ° F.	101·7	105·8	107	103·4
Hours	1	4	6	15

TYPICAL TEST CHARTS

It is rather difficult to lay down definitely what a typical chart should be, and a few examples are detailed.

No. 41. Shorthorn Orangeman. S.A. Test.

Temp. ° F.	101·4	101	102	101·2	101·8	102
Hours	1	3	6	9	12	15
	101·8	101·8				
	18	21				

Rise, 0·6° F.; fall, 0·4° F.—probably the daily variation in temperature of the animal. This bull was sold in the Argentine for £4,500.

No. 18. Postmaster. A.-A. Bull. S.A. Test.

Temp. ° F.	101·8	100·8	101·6	100·3	100	101·6
Hours	1	6	9	12	15	18
	101·4					
	21					

Rise nil; fall, 1·8° F.

No. 63. A.-A. Bull. S.A. Test.

Temp. ° F.	101·4	101·4	101·2	101·2	101·5	101·4
Hours	1	3	7	9	12	13½
	101	101·5	101·6	101·8	101·8	
	15	16½	18	19½	21	

Rise, 0·4° F.; fall, 0·4° F.

I would call No. 63 a typical chart—where the rise and fall of the temperature is the same

and shows that the animal has not been affected by the inoculation of tuberculin.

One might issue a chart as above with every confidence that the animal could be insured for the re-test in the Argentine and yet it might fail to pass in that country. Bull No. 63 successfully passed through the Argentine Quarantine Station, but one does not know what conditions the animals encounter after they leave this country. As already mentioned if a reactor is shipped it may cause havoc among a few of the others on board.

One cannot guarantee that a bull will pass the test two months later, but according to insurance statistics, it can be reasonably expected that an animal with such a chart as that of bull No. 63 will pass the re-test in the Argentine.

Apart from all the difficulties encountered, it is really remarkable how few animals fail on the other side and records show that the number of reactors is less than 1 per cent. If careful selection and testing were not carried out many bulls would be rejected and cause serious loss to the exporters. It is work that calls for exceedingly careful and conscientous recording, without fear or favour, and even though a bull failing to pass the re-test be valued at £4,000, a decision must be given in a frank and straightforward manner.

The subcutaneous test is considered to be quite a safe test and though large doses are employed for the S.A. Test I do not think that they are necessary for animals that have had no previous experience of tuberculin. As an experiment, nine dairy shorthorn cattle were tested that were never tested previously. The dose of tuberculin given to each was 2 c.c. and the following is the record:—

No.	° F.	° F.	° F.	° F.	° F.	
110 Notts.	102·6	106·4				Pos.
111 Winsome	102·7	106·6				„
112 Pearl	101·8	104·2	106			„
113 No. 8	102·4	102·2	101·8	102	101·6	Neg.
114 „ 9	102·6	102·6	102·4	102·2	102·3	„
115 Emp.	102·6	101	101·5	102	101·8	„
116 Coin	102·8	101·6	101·4	102	101·8	„
117 Boy	102	106	105·4			Pos.
118 M. Boy	102·2	101·1	101·4	101·3	101·5	Neg.
Hours	1	12	15	18	21	

This shows that a small dose of tuberculin is effective provided that the animals have not been previously tested.

The large doses of tuberculin employed for the S.A. Test must make it rather difficult for the Argentine authorities to decide whether or not a bull is a reactor. Every bull going to that country can be classified as a "doped bull." It is understood that the principal test in the Argentine Quarantine Station is the ophthalmic test. This is the preliminary test and all quarantine bulls are subsequently re-tested by the subcutaneous method to confirm, or otherwise, the result of the ophthalmic test. In this country it has been found that the ophthalmic test is of little use in the testing of pure stock and it is only very occasionally that a typical eye reaction is found. The ophthalmic test is always applied in conjunction with the S.A. Test and is of secondary importance. Climatic conditions probably affect this test in this country, whereas in the Argentine the climate is evidently more suitable.

There is little more to be added in regard to the general technique of these tests, except that it is preferable to withhold all food from the animal prior to and during the test, as it seems more natural to starve the animal in conducting tests of such severity.

In cold weather, the temperature of the animal drops in the early morning, as shown in the chart of No. 109 (Martinet):—

Temp. ° F.	101·2	101·4	101·4	100·4	100·8	100
Time	1 p.m	4 p.m.	7 p.m.	10 p.m.	1 a.m.	4 a.m.
	101·4	101				
	7 a.m.	10 a.m.				

Young bulls are kept on the cow during the test and it is quite common to find that after suckling, the temperature will jump up 1° F. It is also higher during rumination.

The usual precautions are taken to cleanse the skin at the seat of inoculation and in this connection irritating disinfectants should be avoided.

THE DOUBLE INTRADERMAL TEST

The double intradermal test has become more generally employed since 1930 and many of our colonies demand it.

This test is to be preferred to the subcutaneous test and though the period of test is longer and one may have to travel long distances at least three times, it does not have the disadvantages of the S.A. Test and one can usually suit one's own time, with practically no night work—the bug-bear of the S.A. Test is the continual night work and one cannot stand the strain for long periods.

A typical example of an intradermal reaction is No. 19. Vanguard. A.-A. Bull:—

Initial 10·2 m.m. 48th hour, 40 m.m. Temp. 104° F.

This animal was subsequently re-tested with the S.A. Test and gave a reaction:—

Temp. ° F.	101·8	101·9	105·2	105·4
Hours	1	3	9	12

which confirms the double intradermal tuberculin test.

Other examples of reactors are:—

No. 174. Inchcape, A.-A.
10 m.m. 24 m.m. 30 m.m.

No. 176. Fordie, A.-A.
10·2 m.m. 25 m.m. 30 m.m.

No. 177. Border, A.-A.
12 m.m. 24 m.m.

No. 181. A.-A. Heifer.
10 m.m. 22 m.m. 30 m.m.

No. 197. Ugie. A.-A. Heifer.
9 m.m. 25 m.m. —

With the double intradermal tuberculin test, when testing for export, no animal is given the chance of being a doubtful reactor—it must either pass or fail. The following case is recorded:—

No. 156. Beauty. A.A. Heifer. Chart: 10 m.m., 10 m.m., 12 m.m.—site of inoculation very painful on palpation.

Animals that show pain at the site of inoculation are rejected—no risk must be taken. My reason for being so drastic is my experience in having tested all cows that come under the Tuberculosis Order in my area. Local authority inspectors are not required to do this, but it gives one the opportunity of making a *post-mortem*, by which the test may be verified.

In many badly-affected cases of tuberculosis the reaction during the test was invariably negative, according to the measurements recorded, though at the point of inoculation the animals evinced severe pain and were condemned accordingly.

Examples of non-reactors are as follows:—

No 179	10 m.m.	10 m.m.	10·5 m.m.
„ 180	10 m.m.	10 m.m.	10·5 m.m.
„ 182	12 m.m.	12 m.m.	14 m.m.
„ 183	10 m.m.	10 m.m.	12·5 m.m.
„ 194	8 m.m.	9 m.m.	10 m.m.

The average increase in the size of the original measurement of the skin varies from 2 m.m. to 3 m.m. I do not like a further increase, and with a 4 m.m. to 5 m.m. increase the animal is rejected, for, as mentioned, one cannot take risks.

The site of injection is an important factor, and in export work the skin of the neck is preferred. The only objection to the caudal fold is that this area requires careful cleansing and disinfection, and if applied in Highland cattle special means of restraint are necessary. These cattle are difficult to handle and are expert wrigglers and kickers.

Whatever site for inoculation is preferred in carrying out the double intradermal test, two injections are made in different areas. This procedure will often show variation in the measurements recorded. It appears to be a safe practice and may reduce the incidence of doubtful reactions.

The best type of dental syringe should be employed, with the screw type of butt. The needle should be short and should appear only 5 m.m. to 6 m.m. from the exit of the holder. A short needle will not penetrate the subcutaneous tissue and the tuberculin injected will be easily felt as a small pea lying immediately under the epidermal layer of the skin. A mark should be made, so that the seat of inoculation can be easily determined at the 48th hour.

Summary and Conclusions

This article has been compiled from the charts of over 1,100 animals re-tested for export and while I do not suggest that the methods adopted are ideal, they have materially helped the exporter to combat the position created by the "doped" animal.

The present time is appropriate for the introduction of legislation for the control of tuberculin. Without tuberculin control it will be very difficult to eradicate tuberculosis from dairy herds and at the moment it is quite easy for the layman to procure this product. A few injections of tuberculin into dairy cows will defeat any attempt to get clean herds, no matter what test is used, and cause endless worry and difficulty in eliminating the reactors.

SERVICE OF THE VETERINARY PROFESSION TO THE STATE

T. HICKS, M.R.C.V.S.
Sleaford, Lincs.

The Report of the Economic Advisory Council's Committee on Cattle Diseases must convey to all reasoning veterinary surgeons the impression that the State does not intend to use the veterinary profession in the most economical manner nor in such a way as to obtain the fullest service from members of the profession.

A wide view of the problem must be taken if true economy is to be practised, and it is considered that the creation of separate veterinary services to combat various groups of animal diseases is radically wrong and that it will ultimately prove to be false economy.

It has not been necessary to establish a separate veterinary service for the control and eradication of diseases such as glanders, rabies, rinderpest, etc. These have been controlled and eradicated by the Ministry of Agriculture with the aid of general practitioners of the veterinary profession; tuberculosis, contagious abortion, streptococcic mastitis and Johne's disease could be dealt with in a similar manner.

It is doubtful, too, if the three hundred whole-time officials (as recommended in the Report) will, at one stage in the eradication of tuberculosis, be sufficient to perform the necessary duties. In the nearest State to England in which cattle are at present free from tuberculosis, *viz.*, Guernsey, it has been found advisable to apply the tuberculin test to all cattle immediately prior to movement off their own farm. It is very doubtful if this could be carried out by the service as advised without serious interference with the trade of the agricultural community. Again, taking a long view, what is to become of the veterinary service recommended to combat these special diseases when the diseases have

become eradicated? And eradication should result if the service functions satisfactorily!

At present the Veterinary Department of the Ministry of Agriculture is mainly responsible for the control of animal diseases in this country. From this service and the general veterinary practitioners of the country a State Veterinary Service should be developed. It would be necessary to recruit only very few, if any, whole-time officials. This service should be directly and completely responsible for the control of all animal diseases and also for the veterinary sanitation of housing and accommodation of animals, examination of animals to be used for breeding purposes, and ultimately for the inspection, and control of inspection, of all animal products which are intended for human consumption.

If such a State Veterinary Service were organised on the following lines, it would be capable of dealing with any and every State veterinary problem which may arise in the future. If could be put into action at a moment's notice, and a situation (such as is detailed in the Report mentioned) where it is said to be necessary to train three hundred veterinary officers before tuberculosis in cattle can be tackled, would never arise.

The service should be administered by a Chief Veterinary Officer, and he should frame the Regulations which are necessary to control each particular disease—such regulations, of course, being submitted through the Minister of Agriculture to become law.

The country should be arranged into divisions, and these divisions should be split up into areas of suitable size. Each division and area should have a whole-time veterinary officer and these should be men of mature experience and proved ability, with an intimate knowledge of veterinary practice and of animals and agriculture in general.

The administrative veterinary officer in each area should be responsible to his divisional officer for all matters relating to scheduled contagious diseases of animals in that particular area and the divisional officer should in turn be responsible to the Chief Veterinary Officer.

Administrative Veterinary Officers in areas should keep in close touch with practitioners, and should be responsible for all questions of administration, statistics, etc. The amount of clerical work to be done by executive officers should be kept at an absolute minimum. Administrative Veterinary Officers would be able to explain and supervise any procedure required by Regulations. There should be a small number of whole-time officials in excess of the actual number of posts, and these men should be available for work in extensive outbreaks of disease, or for special duty. A sufficient number of whole-time veterinary officers should be provided for laboratory work, and they should manufacture, and be responsible for the reliability of all diagnostic agents (tuberculin, etc.), used by the State Veterinary Service. With the general use of the tuberculin test, microscopic work would be considerably reduced, as the natural and commonsense procedure would be to pasteurise all milk from cows which had not passed the test. All that would then be necessary would be bulk sampling and inoculation tests in order to check the efficiency of pasteurisation and the test.

The remainder of the State Veterinary Service should be composed of general practitioners who should also continue with their ordinary general practice.

Practically all executive work in connection with veterinary State duties regarding contagious diseases should be carried out by general practitioners. These men have been trained to deal with all diseases of animals and have had the necessary experience. If they are not considered fit to carry out and interpret the tuberculin test, then something must be radically wrong with their training, and immediate steps should be taken to put it right. If the veterinary profession acknowledges that its members are not qualified to employ the tuberculin test, then it must automatically stand convicted and disgraced: but it is also necessary to remember that the tuberculin which is used is not standardised, and therefore uniform results cannot be expected. As a matter of actual fact, general practitioners have, in the past, been able to compete with a disease which has been eradicated by means of a similar test (*viz.*, glanders), and they are competent to meet any future requirements. General practitioners are at present employed in connection with diseases where suspected outbreaks are too numerous to be dealt with by the present State service, *e.g.*, anthrax; on work which it is acknowledged that they are better able to perform than whole-time officials, *e.g.*, examination of breeding animals as to soundness; also when outbreaks of disease become too large and widespread to be dealt with by the whole-time service, *e.g.*, extensive outbreaks of foot-and-mouth disease. Without any doubt executive State veterinary work should be done by them. The secret of success lies in the manner in which their work is to be organised and co-ordinated and in the clearest interpretation of laws and regulations.

This should be done by whole-time officials, and it is again stressed that these officials should be sound men of extensive experience, proved ability and character: men who can convey to the agricultural community a feeling of confidence in their judgment and who are prepared fully and openly to discuss with, and, if necessary, demonstrate to, practitioners, all questions

of diagnosis and all aspects of contagious disease. Such knowledge can only be acquired through general practice and ultimately all full-time State veterinary officials should have had at least five years' experience of general practice before they are given a full-time appointment. The idea of a young graduate, who may not even know how to handle animals properly, attempting to advise an experienced practical farmer how to feed and care for his animals (as is recommended in the Report) is ludicrous. Cheap advice is not usually highly valued and advice offered by such an individual would carry no weight with the agricultural community.

To initiate the service, there are sufficient whole-time veterinary surgeons employed in the Veterinary Department of the Ministry of Agriculture to provide whole-time officials as outlined, and it is understood that the country is already arranged into divisions by that Department for the purpose of combating contagious diseases. The same Department should also be able to provide sufficient qualified officers to conduct laboratory work. Full-time officials would still be necessary for post-inspection work, but in many instances these could be supplemented by general practitioners, *e.g.*, examination of horses for export.

General practitioners are already employed by local authorities, and there should be no difficulty in starting the scheme.

The advantages of a State service organised as above are too numerous to mention in detail. The service would be flexible and adaptable and the country would be assured of a service which could deal effectively with any situation which might arise. It would simply be a matter of scheduling a disease and issuing laws and regulations, and there would be no question of waiting while men were trained before the disease could be tackled. If general practitioners had so much work that it curtailed their private practice, they would employ assistants and this would be all to the good of the general community, as real veterinary surgeons would develop. Above all, there would be one uniform and co-ordinated system of control: a most important factor which will no doubt be fully realised by all business men. Concerted action could be taken on any matter, be it contagious disease, sanitation, research work, animal husbandry or education of agriculturists. County veterinary advisers and suchlike would be superfluous. It would never be necessary to create any other veterinary service and assistance could be given against any disease causing heavy loss to agriculturists. The service could be instituted with facility. An absolute essential, however, is that whole-time officials must be men of the right type and experience. The right men are available in the profession. If they are not in the right place then they should be put there. All that is required is a real will to succeed, and to put the profession on a sound basis and enable it to give of its best to the State. Does this will exist? Possibly if the Minister of Agriculture were to revert to a procedure adopted 15 to 20 years ago and give a "direct order," it would yield results.

The alternative policy is comparable to employing three men to perform a task which can be done by one: each of the three men has more spare time and full value is not received. Moreover, service in a restricted sphere is apt to develop a restricted outlook and so become unhealthy.

Obviously if all work in connection with contagious diseases of animals is taken away from the general practitioner, he will ultimately die out and be replaced by unqualified men. Owners of valuable animals, and all members of the general public who are interested in animal welfare, will appreciate the importance to the country of fully-qualified, practical veterinary surgeons.

Finally, an important feature of the scheme will be the recognition of the general practitioner as a servant of the State, which would be responsible for providing him with a remuneration commensurate with his professional status and service. At present he is called upon to serve the agricultural community in a laborious form, with but little recognition, and for a remuneration small in amount and postponed indefinitely in payment. The whole-time practitioner whose general experience is limited, has a light task, short hours, and a comparatively liberal income punctually paid, not to mention various other advantages such as allowances and leave.

These differences in the veterinary profession are quite unfair, and call loudly for a radical remedy.

PROTEIN IN COWS' RATIONS

Writing in the *Scottish Journal of Agriculture*, Mr. A. B. Fowler, Mr. S. Morris, and Mr. N. C. Wright, of the Hannah Dairy Research Institute, state that as a result of experiments carried out on cows at the Institute it has been established that it is not enough to fix definite standards of protein feeding, and that for accurate rationing it is essential to take into account the quality as well as the quantity of protein in the ration. It has been calculated that 10 lb. milk of 3 per cent. protein content contains approximately 17 grains of lysine, and it is obvious that the production ration must contain at least this amount of lysine, it being assumed that the maintenance ration covers the body requirements for lysine.

Dairy farmers are advised to watch this point in determining rations for their cows. It is pointed out that foodstuffs which can be readily produced in Great Britain—*i.e.*, blood meal, meat meal, beans and peas—have the highest lysine content, and therefore constitute the best sources of protein for milk production.

Clinical Communication

THE SURGICAL REPAIR OF A DIAPHRAGMATIC HERNIA IN A DOG

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The purpose of this article is not merely to respond to an invitation to render an account of a rare, if not singular, success, relative to a dog which is fully restored to its normal state of health and activity by reason of the surgical repair of a ruptured diaphragm, but to stress such essence as the practical aspect of the intervention, the possibilities of even the most modestly equipped surgery and the significance of earnest endeavour.

The subject of discourse is a five-year-old Sealyham terrier, summering with his mistress, Mrs. LeRoy Goff, at Vineyard Haven, Massachusetts, and of Washington, D.C. This dog was presented for examination several days after having been stricken with what was described as a sudden attack of laboured breathing, which was aggravated to the point of asphyxia by even moderate exertion. The cause for the delayed visitation to the hospital was not disclosed, although the symptoms were clearly alarming enough to demand immediate counsel. To be sure, the gravity of the situation was unsuspected.

However, a glancing inspection, together with the knowledge of the sudden onset of events, immediately inspired the suspicion of a diaphragmatic hernia, obviously of traumatic origin. The characteristically short, stifled respiration, blended with the large area of dull percussion over the chest; the subdued vesicular murmurs and the gauntness of the abdomen connoted a diagnosis of rupture, with the prolapse of abdominal viscera into the thorax. These facts were substantiated by subsequent radiographic examination, following a bismuth meal, which revealed that the stomach remained approximately ***in situ***, that the liver shadow was thrust forward, that intestinal loops were intruding into the chest as far forward as the sixth rib, and that it was reasonably certain to be of a right-sided nature.

Upon this confirmation the fate of the dog was still to be decided. To be sure, he could not have lived a normal life as he was, nor was it the wish of his mistress that he should; yet, she was reluctant in consigning him to a lethal fate without a fair trial. This attitude was, indeed, gratifying to the writer, who had long sought the occasion and the justification for making an inroad into this uncanny surgical field. Thereupon, a rather bold prognostication was made, to force the issue, but of liberal and seemingly sufficient latitude to impress the owner with the significance of the proposed intervention. The subsequent fulfilment of this moral obligation not only meant the sparing of a prized possession but bears out the maxim, "Something attempted, something done," and the fact that one should not rely wholly upon tradition and the assumption of impossibilities. This is a new era of "new dealing," and the moral is "to be up and doing," so that "each to-morrow finds us farther than to-day."

Fig. I.

Pre-operative, photograph of X-ray picture of subject after bismuth meal.
Clearly shows stomach *in situ* and intestinal loops in thorax.
Copy of negative slightly hazy because of unavoidable motion.

With the premise laid and the animal prepared to go under the knife, there were two vital factors to be considered. First, the anæsthesia. Ether was ruled out because of its exciting and suffocating tendencies, as was clearly demonstrated by but a few inhalations, which all but strangled the patient, when its use was attempted to produce quietude for the assurance of well-defined radiographs. Nembutal (pentabarbital sodium), with the advantage of requiring little or no thought after its administration, was chosen and it served the purpose nobly. A narcotic dose was given orally, in capsules, two hours prior to the time set for operation, with the result that the patient went peacefully asleep with the greatest of ease and without the slightest embarrassment of any of the vital functions. Immediately preparatory to the surgical treatment, a complementary intravenous injection was administered to raise the dose to that usual for anæsthetic requirements, namely, to a total of one-sixth-of-a-grain for each pound of body weight.

The second important step was to provide artificial respiration during the period in which the lungs would remain in collapse, because of the atmospheric air pressure vented into the thorax upon incision. This was accomplished through the aid of an ordinary automobile tyre pump, operated by an attendant at an approximate rate of 30 impulses per minute—not sufficiently forceful to inflate the lungs fully, yet enough to insure sufficient ventilation to sustain life. Obviously enough, no measure of the air intake was possible with such an arrangement, but it was variably provided by accelerating and retarding the pumping rate, as the condition of the patient demanded. Contact with the subject was made through the medium of a three-eighths-of-an-inch standard rubber tubing inserted directly into the trachea by way of the mouth.

The Operation

With everything in readiness, a liberal incision was made somewhat to the right of, and parallel to, the linea alba—commencing posterior to the xiphoid cartilage. A second was drawn at right-angles to it, as in the formation of the capital letter T, into the right flank—thus providing a triangular opening for free accessibility to the field of operation. An interior inspection at once revealed that the entire liver and an unmeasured section of small intestine were missing from the abdominal cavity and had prolapsed into the thoracic cavity through a rather irregular three-inch tear in the diaphragm, extending in a general dorso-ventral direction—parallel to and within an inch of its marginal attachment. The size and nature of the vent were, of course, only visible after the extrication of the abdominal organs, which was, to be sure, a delicate operation and by no means as easily consummated as described. Gentle but rather firm traction, aided by the influence of gravity (afforded by the elevation of the fore part of the body) made possible the successful transposition. The subject was maintained in this inclined position until the conclusion of the correction, to keep the abdominal viscera, now wrapped in antiseptic gauze, away from the surgical field, to facilitate subsequent suturing. Several ounces of a serosanguineous fluid and a large blood clot escaped from the thorax after the removal of the liver, but otherwise the thoracic cavity and its contents appeared normal. The liver was decidedly swollen and passively congested.

The hernial ring was closed by two overlapping rows of continuous sutures, using Reeves' Dry Sterilised, No. 2 catgut—a 15-day gut—each commencing at opposite ends of the aperture and there knotted with an allowance of a free end for subsequent tieing to the terminal endings of the completed opposing series. The ascending series of stitches, the second to be inserted, interposed those of the descending chain, which gave the end result the appearance of a series of cross stitches. Synchronously with the completion of the first row of stitches, the residual air in the thoracic cavity was expressed by a complete inflation of the lungs. The abdominal organs were now placed approximately *in situ* and the abdominal incisions were closed in the conventional manner, which was difficult because of the opposing influences exerted by the swollen viscera and the pre-operative abdominal contracture. As this course progressed, it was both interesting and inspiring to observe the gradually increasing return of normal respiration, aided only by a moderate ventilation of the lungs with pure oxygen, as the impulses of air under pressure became unnecessary.

Throughout the hour of operation, warmth for the patient and light for the operator were provided by reflected rays from ordinary incandescent electric bulbs and the usual asepsis was, of course, observed. As is unusual after the use of nembutal, as an anæsthetic, the patient recovered very calmly from under its influence: as to whether the divided means of dosage had anything to do with the incident is yet to be investigated. The after-treatment consisted only of quiet, and the usual dietary regulation.

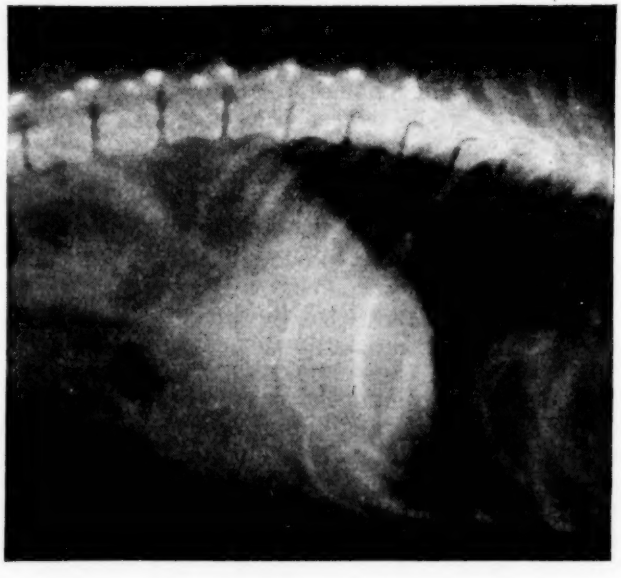

Fig. II.

Reproduction of post-operative X-ray negative, without meal, two weeks after operation.

In conclusion, it may be remarked that 13 must be the patient's lucky number, for it was on the thirteenth of July that he underwent this noteworthy ordeal in quest of a normal existence and it was on the thirteenth of August that he was dismissed from the hospital completely restored. Thus, at the time of writing, three

weeks since his departure, the dog continues to remain as hale and hearty as ever he was—enjoying the invigorating sea breezes of his home surroundings and in the enviable position of commanding undivided and undisputed distinction whenever "my operation" is the theme of conversation. Needless to say, his mistress is very happy and possessed of a high esteem for the profession that made possible this auspicious reunion.

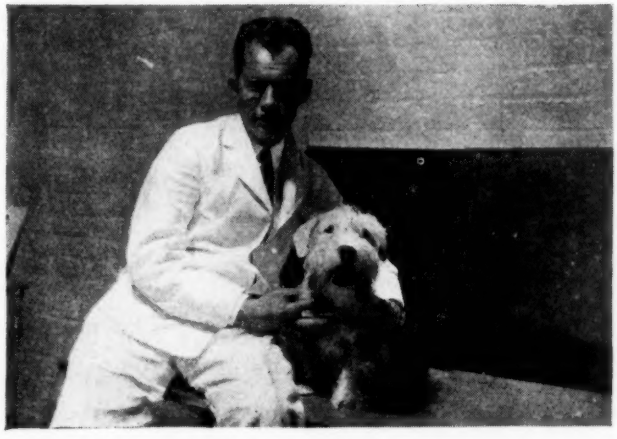

Fig. III.

Subject and Surgeon. Third day after operation.

Abstracts

[Relationship of Veterinary Science to Animal Breeding and Public Health. Legal Protection of the Practice of Veterinary Science. Mohler, J. R. (Chief, Bureau of Animal Industry, U.S. Dept. Agric., Washington, D.C., U.S.A.). (1934.) Twelfth Internat. Vet. Congress, New York. Paper No. 54. *Author's Summary.*]

The address involves three topics which for many years have received the attention of the veterinary profession. Though seemingly diverse, these activities—animal breeding, public health, and legal protection of veterinary practice—are nevertheless closely related. In fact, they have their origin in a common root deeply embedded in the soil of tradition. They symbolise man's efforts to surmount the risks of his existence on this earth.

Quality in livestock is of profound veterinary interest, since animals that are valuable for breeding and utility purposes justify veterinary service more often than inferior types. Surveys have shown that stockmen interested in livestock improvement seek the latest facts concerning means of maintaining animals, including poultry, on a high plane of health and efficiency.

Through scientific skill and diligence, veterinary investigators have determined the causes of the principal animal maladies, and scientific literature has given their findings world-wide distribution. In the United States veterinary officials have established both regulatory and informational services on behalf of improved livestock health. Regulatory measures include a wide range of inspection duties, in connection with the international and interstate movement of livestock, and systematic plans of disease eradication or control. The informational service acquaints owners and practitioners with official recommendations through publications, extension work, radio broadcasting, exhibits, and motion pictures.

In the relation of veterinary science to public health, meat inspection is an effective barrier to the spread of livestock infections to man. It also has valuable sanitary features. Veterinary supervision of animals, at time of slaughter, likewise is the basis for an extensive pharmaceutical industry which utilises glands and other parts of animals for human ailments.

In co-operation with medical officers, veterinarians have aided in improving milk supplies through the establishment of sanitary standards, inspections, and tests. These duties also commonly include supervision of general food supplies and of food-handling establishments.

The service of veterinary science to public health suggests other possible applications of knowledge, obtained from livestock, for the betterment of mankind. Promising fields are those of race improvement, nutrition, and allied biological studies.

As a result of the unselfish and untiring efforts of those who were members of the profession in former times, and as an outcome of constantly widening public sentiment, with the support of intelligent and co-operative legislators, veterinary science has obtained legal protection comparable in every respect to that enjoyed by other professions in the United States.

The legal protection thus achieved has had an encouraging effect. With this security the profession as a whole has been imbued with higher purpose. It has contributed directly and forcefully to the extension of scientific usefulness in the community, State, and Nation. It has raised the veterinarian to a vital and indispensable place in human affairs.

Indeed, legal protection to the practice of veterinary science is a recognised public necessity, in both a national and international sense, for the reason that the proper distribution and application of veterinary knowledge are world needs.

With such legal protection, broadly speaking, veterinary science has been enabled to find expression through world organisation, such as this gathering represents, thereby contributing not only to a wider dissemination of veterinary

knowledge but also to a better understanding of means by which people of all nations may enjoy greater security, prosperity and happiness.

[*We hope to publish the full text of Dr. Mohler's address in an early issue.*—Ed., *V.R.*]

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[**Streptococcus Mastitis in Cattle: Bacteriology and Preventive Medicine.** Minett, F. C. (Director, Research Institute in Animal Pathology, Royal Veterinary College, London.) (1934.) Twelfth Internat. Vet. Congress, New York. Paper No. 23. *Author's Summary.*]

This report deals with streptococcus mastitis in cattle, mainly from the point of view of its bacteriology and preventive medicine. The subject from these two standpoints is critically reviewed, with particular reference to the research work of the last few years. A list of references is appended.

The organism termed *Streptococcus agalactiæ* is by far the most common cause of bovine mastitis, but it is now clear that the disease is occasionally set up by two other groups of streptococci, as well as by a strongly hæmolytic organism which may be called *Str. pyogenes*. These groups are clearly distinguished on biochemical grounds, but pending international agreement on bacterial nomenclature, it is proposed that the groups should simply be given numbers. *Str. agalactiæ* would, therefore, become mastitis streptococcus group I, although the alternative name, *Str. agalactiæ*, in view of its priority, may be retained for the present. The term *Str. pyogenes* may also be retained, owing to the general similarity of the udder organism to that so designated in man. The other two groups may be called mastitis streptococcus groups II and III, respectively. The term *Str. epidemicus* should disappear, as this organism seems to be merely an encapsulated variant of *Str. pyogenes*.

Mastitis due to the second streptococcus group tends to be more acute than that due to group I organisms. Group III streptococci usually produce mild disturbances, while *Str. pyogenes* mastitis may be severe clinically.

Many group I strains show narrow hæmolytic zones of the beta type (Brown) around deep colonies in ox-blood agar. Other strains are non-hæmolytic. A number of beta strains produce small amounts of hæmolysin when cultivated in a liquid medium under suitable conditions. Group II strains tend to assume an alpha type (Brown), while group III streptococci are non-hæmolytic.

There are serological differences between the three biochemical groups, and each of these groups contains a number of serological types. Thus group I strains fall into at least three main types.

Most *Str. pyogenes* strains associated with mastitis are animal strains, in the sense of P. R. Edwards, and apparently do not cause disease in man. Human strains of this organism, on the other hand, occasionally cause mastitis and infected animals are then dangerous to human beings.

The economic importance of streptococcus mastitis is due largely to its wide prevalence. Of 2,530 cows examined in England, 970 (38 per cent.) were infected in at least one quarter.

Group I infections alone seem to be spread during milking, and for the purpose of control accurate diagnosis is required. So-called indirect methods have their value, especially when tests are repeated or read in combination, but they are essentially preliminary tests and the results in many infected animals are negative. They may also give misleading results in animals free from *Str. agalactiæ*. A reliable cultural method is the most satisfactory for diagnosis and preference is given to a selective blood-agar medium containing crystal violet and æsculin. This medium can be recommended for large-scale diagnostic work.

Chronic streptococcus mastitis can be controlled by systematically milking infected cows last.

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[**Canine Nutrition.** Linton, R. G. (Department of Hygiene, Royal [Dick] Veterinary College, Edinburgh.) (1934.) Twelfth Internat. Vet. Congress, New York. Paper No. 25. *Author's Summary.*]

It is suggested that Dechambre's standard of food requirements for dogs may be accepted as a useful guide as to quantity and proportions.

Some daily rations for dogs, including two from greyhound kennels, were analysed and compared with Dechambre's standard. A fairly close agreement was noted.

The chemical composition of 27 different kinds of dog biscuits is given, showing great variation. If dogs are to be fed according to a standard, the composition of the biscuits must be known.

As the dog is still a carnivorous animal, his diet must contain a proportion of fresh raw flesh. This is definitely essential for young growing dogs, and raw liver, spleen, and kidney are particularly valuable in this respect. Crushed bones or bone flour should always be given to pregnant and nursing bitches, and also to puppies.

Fresh horse flesh, if obtained from grass-fed animals, is quite as good as ox beef.

Residues from fat-melting factories are not suitable for dogs.

Cooked vegetables are now used extensively as food for dogs, but it is doubtful if this is justifiable.

The diet of all dogs should contain an abundance of vitamins A, B_1, B_2, D and E. Innes has shown that the dog does not require vitamin C in its food.

[**Fowl Pox.** Doyle, T. M. (Research Officer, Veterinary Laboratory, Ministry of Agriculture and Fisheries, Weybridge). (1934.) Twelfth Internat. Vet. Congress, New York. Paper No. 41. *Author's Summary.*]

There is a considerable literature on the inclusion bodies present in certain virus infections, and opinion is divided as to their nature and origin. The results obtained in recent investigations appear to be strongly in favour of the inclusion bodies that occur in fowl pox and psittacosis being in reality the causal agents.

While it has been fully established that certain species of biting flies and mosquitoes are capable of transmitting fowl pox from infected to healthy fowls, there has been some tendency to exaggerate the importance of this method of transmission to the exclusion of others. In fact, some authors have gone so far as to state that fowl pox is not transmitted by direct contact between diseased and healthy fowls in cage experiments. This view is inaccurate.

The epizoological history of fowl pox varies in a manner similar to that of other contagious diseases; outbreaks may be highly virulent and spread rapidly or they may spread slowly and the mortality rate be low, the governing factors being probably the virulence of the particular strain of virus, the intensity of the infection, and the conditions under which the fowls are kept.

It is a proved fact, however, that fowl pox is highly contagious under both laboratory and field conditions and can spread rapidly in the absence of an insect vector, and direct infection from diseased to normal fowls is probably the most important method of transmission.

Immunisation with virulent fowl-pox virus has been extensively practised in America and to a lesser extent in other countries, and although the method is not free from danger its employment appears to have been justified on economic grounds.

Vaccination with live virus confers a solid immunity that persists throughout the average life of a fowl. Its use, however, should be restricted to young birds, otherwise there will be a varying degree of constitutional disturbance and a considerable risk of generalisation of the infection.

The use of live virus can hardly be justified on a clean farm even though there be a threat of infection from a neighbouring centre, and its use is also contra-indicated in laying flocks, as it invariably causes a marked decrease in egg production and may give rise to heavy mortality.

The introduction of pigeon-pox vaccine for the immunisation of fowls against fowl pox has brought about a marked reduction in the incidence of the disease in Great Britain. The main objections to the use of pigeon-pox virus are the limitation in the strength and in the duration of the protection conferred by it.

Laboratory experiments have shown that the inoculation of fowls with pigeon-pox virus fails to give a complete protection against severe artificial infection with fowl-pox virus, but that it confers a solid immunity against gross natural infection. The duration of the immunity has been accurately estimated to vary from four to six months.

There is ample evidence proving that no constitutional disturbance follows the use of pigeon-pox virus on fowls of any age, that there is no decrease in egg production, and no risk of a generalisation of infection.

In view of the wide distribution and high incidence of fowl pox, the virulence of the disease, and its adverse effect on the poultry industry, it would appear advisable to encourage as a routine procedure the annual inoculation of all young stock with pigeon-pox vaccine until such time as the general incidence of the disease has been substantially reduced.

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[**The Blacktongue (Canine Pellagra) Preventive Value of Fifteen Foodstuffs.** Wheeler, G. A., and Sebrell, W. H. (1933.) *National Institute of Health, Washington, U.S.A. Bulletin No.* 162.]

Wheeler and Sebrell record the preventive value of fifteen foodstuffs against blacktongue (canine pellagra) when added in certain proportions to a basic diet and fed in each instance to a group of five dogs. This basic diet had been proved and recorded previously to produce blacktongue invariably in dogs within about 60 days.

The following foods were found to contain the preventive factor in sufficient quantities to protect dogs over a test period of a year: tinned corned beef, tinned turnip greens, peanut meal.

Some foods were found to contain enough of the preventive factor to delay the onset and in some cases to protect one dog out of the five; these were: tinned evaporated milk, tinned spinach, collards, tinned mustard greens and red kidney beans.

The other foodstuffs tested, namely, Irish and sweet potatoes, rolled oats, rye meal, mature onions, evaporated apples and navy beans, were found to contain little or none of the preventive factor.

B. B-J.

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[**Pathology of Experimental Blacktongue.** Lillie, R. D. (1933.) *National Institute of Health, Washington, U.S.A. Bulletin No.* 162.]

Lillie describes fully the pathological changes found in cases of blacktongue. The material examined was obtained from the nutrition experiments of Sebrell and consisted of 26 dogs dying of blacktongue or killed *in extremis.*

The following were among the chief pathological changes noted: the mucous membrane of the mouth showed erythematous and ulcerative lesions, superficial necrosis and, in dogs dying in attacks of blacktongue, degenerative changes in the regional nerves.

Nothing characteristic was noted in the gastro-intestinal tract. The lungs were usually normal though sometimes broncho-pneumonia was found. The liver usually showed passive congestion, and the spleen was frequently anæmic and fibrotic. Some degeneration of the kidneys occurred, but rarely fatty changes. In about half the cases examined there was considerable injection of the meninges.

B. B-J.

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[Human Infection with the Bacillus of Swine Erysipelas. Albrecht, A (1934.) *Deutsche Tier. Woch.*, Feb. 3rd, pp. 71-75, No. 5.]

Records of *Erysipelothrix rhusiopathiæ* infection of man prior to 1910 are rare. Evidence collected by Prausnitz from over 100 cases reveals the following points: (1) The disease occurs with the greatest frequency amongst those connected with the handling of affected meat or who have to do with the preparation of vaccines and sera; (2) Infection is usually due to wound infection; there is little evidence to show that the eating of affected meat is injurious; (3) The commonest site of the lesion is on the hands and arms. There is a localised swelling with, perhaps, vesicular formation. In more severe cases the whole limb is involved, together with the lymph nodes, and there may be pyrexia. According to some authors, the causal organism of human erysipeloid and *E. muriseptica* are identical and the symptoms of the disease which each causes differ only slightly.

[On this point Topley says: "Since there is no known method by which they can be separated with certainty, it seems probable that they should be regarded as variant members of the same species"]

A large number of cases of infection by *E. rhusiopathiæ* in humans are described. Serum treatment was usually beneficial though local applications and ultra-violet radiation were also adopted. In a few cases endocarditis or arthritis developed after a few months.

N. S. B.

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[The Control of Bacillary White Diarrhœa and Tuberculosis of Poultry in Hungary. Manninger, R. *Berl. Tier. Woch.*, March 23rd, 1934, Vol. 12.]

The author describes the voluntary and successful scheme elaborated by the Department of Agriculture in an effort to eradicate bacillary white diarrhœa and tuberculosis from the flocks of poultry in the country and the results achieved over a five-year period.

In the case of bacillary white diarrhœa, systematic testing by the tube method (a titre of 1 : 20 being regarded as positive) was carried out at varying intervals according to the degree of infection present. The best months for this were January, February and March, during which months the agglutinin content of birds with a low titre rose somewhat (Magnusson and Hodosy). Blood sampling was not found to interfere with egg production.

Forty-nine thousand nine hundred and fifty-three birds on 182 farms were tested during the five-year period and tables are given showing the percentage of reactors and the time taken to eradicate the disease. Flocks having a low percentage of reactors at the initial test did not always become clear before those more heavily infected. Where reinfection occurred it was due to the introduction of untested stock.

The same flocks were also subjected to the intra-wattle tuberculin test and where intelligent co-operation was obtained on the part of owners, tuberculosis was eradicated.

N. S. B.

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[Sodium Chloride *vs.* Cane Sugar for Parasite Egg Floatation. Wilson, I. D. (1934.) *Cornell Vet.* January. *24.* 1. pp. 79-80.]

The author prefaces his remarks by comparing this controversy with one which engaged the attention of the early Roman philosophers, who debated the number of teeth possessed by the domestic horse but did not resort to the simple measure of making an actual count.

He points out that the efficiency of the two solutions for the levitation of the eggs and larvæ of nematodes or coccidial oöcysts depends upon (1) the specific gravity, (2) the viscosity, and (3) the rate of plasmolysis caused by the solutions.

The sugar solution generally used is made up of approximately 1,280 grams of cane sugar to one litre of water (one pound to three-quarters of a pint) to which 10 c.c. of phenol is added to act as a preservative; and the salt solution is generally saturated, 357 grams of sodium chloride dissolved in one litre of water.

He compares the two solutions as follows: *Specific gravity*—this is slightly in favour of the sugar solution which at 21°C. has a specific gravity of 1·264 as against 1·206 for the salt. *Rate of Plasmolysis*—the osmotic pressure of the sugar solution is approximately 77 atmospheres while that of salt is about 190 atmospheres. This is considerably in favour of the sugar solution, but is of little practical importance except with thin-shelled eggs which have been left in the solution for a considerable time. *Viscosity*—that of sugar, at 21°C, as measured by the

Saybolt Furol viscosimeter, is 130·9 seconds as against only 32·8 seconds for the salt, which is distinctly in favour of the salt. [The author does not summarise or draw any conclusions, but the inference appears to be that sugar is preferable to salt where a power centrifuge is used and that salt is the better where a hand centrifuge is used. In the absence of a centrifuge, where resort has to be made to the force of gravity, sugar is also better in spite of its greater viscosity, as not only does it dialyse more slowly but it does not crystallise at the surface, which frequently spoils the test where a salt solution is used. Yet another point in favour of the sugar is that bubbles of gas are less likely to form in the particles of vegetable matter in the fæces of herbivores, so that the top is more likely to be free from débris of that kind.

Taking all into consideration, one must conclude that the sugar solution is the better for general use.]

E. L. T.

Report

NYASALAND VETERINARY DEPARTMENT, 1933

Native-owned cattle in Nyasaland outnumber the European-owned by about nine to one, and, therefore, the activities of the veterinary staff are, to a very considerable extent, in the interests of natives. The policy adopted includes efforts to improve the standard of animal management; the reduction of superfluous bulls, and a campaign against worm infestation of calves. A large amount of this work is centred around the dipping tanks which have been erected by the Government. Difficult, slow, and non-spectacular as this work is, and must remain (the report states: "there has been little improvement"), it is the foundation upon which the future herds of Africa must be built if they are to become of economic importance.

It is encouraging to note that Europeans are giving a good lead in cattle improvement. There are now 94 head of pedigree cattle in the Protectorate, and this number would have been increased had it not been that importation is now prohibited, as a precautionary measure against the introduction of foot-and-mouth disease from neighbouring territories. To home readers of the *Record*, the number may seem absurdly small, but the expense, risks and difficulties in connection with pure-bred stock in tropical countries are many.

Disease.—Large tracts of the territory are still infested with tsetse fly. To all cattle in the free areas in their vicinity these are a constant menace, but the outbreaks of trypanosomiasis during the year numbered only nine. African (East) coast fever is enzoötic in parts, but the mortality is chiefly in calves. Other diseases are of little importance and Nyasaland is free from the major diseases such as rinderpest and foot-and-mouth. There is one significant sentence in the report in which it is stated that it is many years since a case of tuberculosis was recorded. It is to be hoped that such a state may long continue.

Colonel Turnbull, the Chief Veterinary Officer, is shortly to retire and this, his last report in that capacity, is a record of that routine work which is going on, with little fuss and less limelight, in all parts of Africa.

J. S.

N.V.M.A. Divisional Reports

WESTERN COUNTIES V.M.A.*

PRESIDENT'S ADDRESS AT PLYMOUTH

Mr. W. J. Radford on "Some Conditions met with in Canine Practice"

A meeting of the above Division was held at the Duke of Cornwall Hotel, Plymouth, on Wednesday, June 20th, 1934. The President, R. H. Smythe, Esq., M.R.C.V.S., occupied the chair, and a discussion on "Some Conditions met with in Canine Practice" was opened by W. J. Radford, Esq., M.R.C.V.S., of Plymouth.

The following members signed the attendance book: Messrs. R. H. Smythe, R. B. Nelder, Fraser, Bloye, Watkins, Patterson, Masson, Blackwell, Kauntze, Thwaite, Bradshaw, Motton and Major Ascott. Messrs. D. S. Barbour and J. W. E. Budge were present as visitors.

The minutes of the previous meeting were taken as read.

Correspondence.—(1) From Sir Frederick Hobday, and Messrs. Irvine, Norman, A. R. Smythe, Forbes, W. B. Nelder, Gibbings, Stephens, F. T. Harvey and G. Harvey, apologising for inability to attend the meeting.

(2) From Dr. Bullock *re* the establishment of an endowment fund for the library of the R.C.V.S. The Secretary was instructed to bring this matter up again at the next meeting of the Division.

Election to Membership.—Mr. C. J. N. Godfrey, M.R.C.V.S., of Honiton, was unanimously elected as a member of the Division.

Presidential Address

A presidential address was now delivered by Mr. R. H. Smythe, in the following terms:—

It is my privilege to-day to address the members of this association, and I wish first to thank you for the honour which you have

* Received for publication, September 17th, 1934.

conferred upon me in electing me as your President. I am the more appreciative because not only is this the fiftieth year of the association's existence, but it is also the year during which we may expect to see drastic changes in the order of our own lives—changes resulting from a threatened legislation, which, should it materialise, as it bids fair to do, will exert an important influence upon the affairs of the profession generally and will affect the immediate and future welfare of every individual veterinary surgeon. More than that, either directly or indirectly, these impending changes in the ordered routine of veterinary practice cannot fail to affect the welfare of the farming community, particularly that section dependent upon the marketing of dairy produce, and it appears inevitable that the disorganisation of private practice resulting from this new order of things will have an immediate and a dangerous effect upon agriculture in general, far greater than ever was foreseen by the Economic Advisory Council's Committee on Cattle Diseases, when they compiled their Conclusions and Recommendations of April, 1934.

No thinking man doubts the urgent necessity of reform in the methods of producing and handling milk—and in the safeguarding of the health of the public against the diseases transmissible through the agency of milk—but, for many years past, until the day came when the necessity of a clean milk *publicity* campaign made some action imperative, it was, solely and invariably, the voice of the private practitioner that was heard, crying in the wilderness, bewailing the absence of legislation which left him powerless to apply the remedy. It was the private practitioner *alone* who, hampered by the "Powers-that-were" in every conceivable way, yet contrived to effect an incalculable amount of good, merely by the exercise of his common sense and by the tactful manner in which he dealt out advice to his confiding clients. Unasked, unpaid and unappreciated, the private practitioner has held, at all times, a watching brief in the interests of public health.

Unfortunately, his days were too long, his nights too short. Absorbed completely in his labours, he realised too late the disadvantage at which he was placed in comparison with those of his fellows in other spheres of veterinary activity, who were able to devote more time to the discussion of work in the abstract and less time to its actual performance. Gradually, the practitioner has succumbed to this immolation, with its attendant lack of publicity, until one finds that to-day he is barely represented in the affairs of the profession and is indeed at this moment in grave danger of being ousted from the province which is essentially his own.

We are not here to reason why a whole-time service of State veterinarians should be considered superior to a service built up of practitioners armed with a lifetime of experience. Centralisation of control is definitely a point in its favour, but the difficulty of co-ordinating the work of a part-time staff with the assistance of a whole-time chief, possessed of organising ability, is by no means insuperable. We can justly conjecture, however, what will be the effect of these impending changes upon the welfare of the practitioner, suddenly deprived of no small portion of his livelihood, and we can foresee the indirect but no less certain result that these changes in the fortune of the practising members will exercise in turn upon the interests and requirements of the farming community.

Veterinary practices fall into two main classes: single-handed practices and those necessitating the co-operation of one or more assistants or partners. In the case of at least the smaller practices, and possibly some of the less profitable larger practices, the demand for whole-time inspectors, at a salary which is not only sufficient but assured, will offer a prospect which few will be in a position to neglect. Such practices as these will probably be abandoned as they will have shed their former market value owing to the conditions which will have arisen, and will be unsaleable. In the larger practices, economic conditions will probably bring about the transfer of one or more assistants to the State service. The total result will be that, everywhere, large tracts of country will be deprived of the services of the working veterinary practitioner, the country will fall back upon cheap and wholesale quackery, and the last state will be worse than the first.

Whilst it is to be regretted that practising veterinary surgeons, with valuable experience, should be tempted to discard their practices, it is credible, upon the whole, that such a state of affairs may be more to the public interest than the enrolment of totally inexperienced recent graduates. Officialism, even when organised, unless doled out with an understanding tactfulness, will "cut no ice" with the British farmer and it is essential to gain his good-will and co-operation before even a start can be made with a scheme such as is contemplated. It is the manner in which approaches are made and an understanding of the practical difficulties of the farm which lead to success in handling one's client and gaining his confidence, and although it is difficult to make the uninitiated even realise that such insight is necessary or desirable, nevertheless these personal characteristics are essential and are only acquired after years of personal contact and a close study of rural psychology. I feel strongly that at least five years' actual experience, either as an assistant

or in control of a practice, should be made an essential requirement before any applicant is considered for enrolment on a whole-time staff and, moreover, it would be only an act of justice to absorb first those practitioners who might otherwise be crippled financially as a direct result of this legislation.

I must confess that were I 20 years younger and could foresee the future of veterinary practice as I do to-day, I, too, would be tempted to send in my application for a whole-time appointment, but I do not regret the circumstance which precludes this possibility. I realise that had the present situation arisen in my younger days and the course of my career been different, I should now be lacking the humility of spirit and the sense of futility which descend upon one, when one realises the feeble outcome of a quarter-of-a-century's groping after clinical knowledge and when one looks back upon a quarter-of-a-century's mistakes.

Under the new legislation, the State will owe a duty to at least two parties. It will owe a duty to the *practitioner* whose living has been jeopardised through no fault of his own, after a life-time spent in the public service, for it must be remembered that the new Orders will be far-reaching in effect and, as a rising tide, they will gradually overwhelm much of the work which has hitherto contributed to his income. But, even more, will the State owe a duty to the great British public who are to be cajoled into purchasing and consuming more and more milk, trusting in the guarantee offered to them, that by the unremitting efforts of a whole-time staff, both efficient and sufficient, they and their children will be safeguarded against all possible infection attributable to the consumption of dairy produce.

What is equally important, however, in my opinion, is that the veterinary practitioner, who has acted for generations as the unappreciated, unpaid buffer between the tuberculous cow and the healthy child, shall continue to exercise his good-will, ***and***, in the unfortunate event of his being superseded, ***then*** it will be his duty to see that the public (who, apart from the practitioner will have no protection) shall get the fair deal to which it will be entitled. Whilst in no way doubting the honesty or good intentions of whole-time officials, it will be advisable, in their interests, in our own and in those of the public, to ensure that the individuals appointed are not required to do more than they can be expected to do properly, that their energies are not restricted by alien authority, that the staff is maintained at a sufficient strength and that the officials do not encroach further than is actually necessary upon the domains of the practitioner.

The Recommendations state that a full-time service cannot be established immediately, as it would require about 300 veterinary surgeons, and that steps should be taken to provide these. The employment of part-time officers (presumably practitioners) should also be permitted as a temporary measure during the period of expansion. This procedure savours rather of the respite formerly allowed to prisoners under sentence of death, whilst they dug their own graves, and it does not promise to be a popular measure. It is quite apparent that any scheme which, of necessity, is dependent during its infancy upon the good-will of the practitioner will have a short expectation of life, when its expressed intention is to destroy its foster-parent as soon as it has gained the necessary strength. Foster-parents may be difficult to acquire on these terms.

In conclusion, gentlemen, I have to thank you for a patient hearing. I have confined my remarks to the one subject because I think it is of supreme importance to us at this moment. Once more, I thank you for electing me as your President and I can assure you that, with the assistance and helpful guidance of your Secretary and your Treasurer, whose virtues are well known to you, I will do all in my power to look after your interests. (Applause.)

At the conclusion of his address, the President asked if anyone would care to make any remarks in connection with the inspection of dairies and dairy cattle.

Major Ascott said it would appear that the authorities were out to saddle them with work they had not done. In his district all had been led by the farming community. The Milk and Dairies Order should be enforced. Veterinary surgeons would be relieved of much trouble if Medical Officers of Health and Sanitary Officers would do their jobs.

Questions relating to compulsory pupilage for veterinary students and the liability in respect of insurance of veterinary surgeons taking such pupils were briefly discussed, but no action was taken.

At this stage the President called upon Mr. Radford, of Plymouth, to open a discussion on "Some Conditions met with in Canine Practice," in compliance with which request Mr. Radford read the following paper.

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SOME CONDITIONS MET WITH IN CANINE PRACTICE

W. J. RADFORD, M.R.C.V.S.
Plymouth

I propose to mention briefly a few conditions met with in canine practice which sometimes prove extremely difficult to deal with. Possibly my remarks may recall to your minds similar difficulties experienced and combated.

Firstly, I would like to mention a peculiar

disease of the lips met with occasionally, particularly in spaniels. This condition would appear to be a gangrenous type of eczema which affects the fold of the lower lip, and is characterised by a fœtid odour and by the difficulty experienced in clearing it up.

Whilst it has been my experience to meet with this affection mainly in spaniels, I have also found it to occur in other breeds. I used at one time to imagine it to be one of the symptoms of a form of gastric distemper, but this does not appear to be so, as the condition occurs in dogs of all ages, and in animals which are apparently quite well in every other way. I have tried various deodorants and disinfectants for cleansing the mouth parts, with applications of some antiseptic lotion to the actual necrotic areas, but in spite of assiduous and drastic treatment this condition sometimes takes months to clear up completely. It has occurred to me that in some cases, possibly, this condition is due to long-standing infestation with tape-worms. My present line of treatment in such cases is to advise cleaning the parts with warm water containing some deodorant, dressing the actual lesions with a glycerine-carbolic-iodine preparation, and using thymol as an internal disinfectant, coupled with some arsenical preparation as a tonic. Also, if thought necessary, treatment for worms is advised. I should be glad to hear if any other members find this condition to be troublesome.

The next trouble to which I intend to refer is perhaps more familiar, *viz.*, a general septic inflammation of the various parts of the cavity of the external ear, and commonly known as "canker." This condition, when it becomes chronic, is a problem the solution of which I have yet to find. In the early stages, no doubt the affection can be cured by cleaning the ear repeatedly with cotton-wool moistened with some suitable non-irritant lubricant, either oily or glycerinous, and dressing with some soothing antiseptic powder. However, in many cases, the ear is in a most horrible state when one first sees the patient—a purulent, smelly, swollen and inflamed cavity. It is obvious that the simple cleansing treatment already outlined is not going to be a very helpful procedure, and the question arises as to what is the best thing to do. Syringing seems to be indicated, but then one realises that very few clients are going to do this successfully, and even if undertaken the ear will in very few cases be carefully and thoroughly dried afterwards. Dropping in disinfectant medications always seems to be adding to the already purulent mess, and one is in a quandary as to what is really the best line of advice and treatment in such chronic, long-standing cases. However, something must be done to allay the conscience, if not the condition, but I have to admit that I have not found this an easy matter. What I usually advise is syringing out the ear with weak solutions of carbolic and glycerine in warm water daily, and drying the ear as thoroughly as possible afterwards. If the drying is thoroughly done, the case may ultimately clear up, otherwise the condition remains in a more or less stationary state, with a perpetual discharge.

I cannot say that this method of treatment appeals to me very much, and I should like to hear members' experience of these chronic and purulent cases, where the client cannot be relied upon to do very much.

Another troublesome condition, sometimes following on the one previously mentioned, is that of hæmatoma of the ear, though in many cases it is more of a lymph- than a blood-cyst or swelling. This is a condition that may, in a few cases, clear up at a first evacuation, but it can cause a considerable amount of trouble, extending over weeks, if not months. My experience with the prescribed methods of dealing with this, such as stitching through the ear, or applying a metal apparatus for pressing the ear after evacuation, has not been very successful. Usually, no matter how the ear is bandaged up, the dog manages to shake the ear loose, and proceeds to rub or scratch the irritating wounded part, with dire results. Owners are usually not keen about dressing and bandaging such a condition daily, which makes useful treatment extremely difficult. At the present time, I usually open up the swelling at the lowest point, and with scissors cut out an elliptical piece, about half-an-inch (or so) long to allow drainage. Perhaps, in some cases, I may syringe the cavity once with some non-irritant antiseptic, such as T.C.P., to get rid of any clots; then bandage and instruct owners to cleanse the part daily, with a non-irritating antiseptic in warm water, apply boric lint and rebandage to the best of their ability, applying no other dressing of any kind, as I find that wound dressings or lotions may lead to extra irritation.

However, I cannot say that I am satisfied with any of the methods of treatment which I have tried. Perhaps a discussion on this very unresponsive condition may bring to light some useful suggestions: the two outstanding obstacles to useful treatment appear to be that, firstly, few owners like handling this condition, and secondly, that it sometimes takes so long to effect a cure that it would be impossible to keep the animal under treatment oneself for so long a period, owing to the expense incurred.

I would now like to turn to the subject of distemper in dogs—not to the disease itself, but to the prophylactic treatment of this affection by means of the Laidlaw-Dunkin method of inoculation. It appears to me that the directions sent out with regard to the procedure to

be followed in carrying out these inoculations, if strictly adhered to, render the process financially impossible for the majority of dog owners. The suggestions are that for two or three days before the first inoculation of the vaccine, and for four or five days after, temperatures should be taken; also, temperatures should again be taken for a few days before and after the inoculation with virus. In fact, the suggestion is made that the dog should be under the observation of a veterinary surgeon for the whole of the period; this would mean about three weeks. Putting the cost of the materials as low as possible, allowing a fee, say, of a guinea for the carrying out of the whole procedure, adding board at 10s. 6d. per week for large dogs, and the total is brought to about £3 10s. Not many clients are going to pay this amount or, I am afraid, even half of it, at least not in these parts. Another puzzling question which arises is this: If after the inoculation with the vaccine the temperature rises considerably, that is, to 103° or above, on no account must the injection of virus be carried out. What, then, is one to do in such cases—drop the whole process or wait a few weeks and try again? In the meanwhile, who pays for the unfortunate trial inoculation?

In actual practice, fortunately, I have as yet not met with any undue temperature reactors; in fact, where I have been able to keep and observe the dog, I have so far found scarcely any reaction to any of the inoculations. Here arises another point: have the inoculations done any good at all, in cases where no reaction or very little has been noticed?

Usually, I examine the animal carefully to see that the general health and condition are good, then give the inoculation of the vaccine and trust to fortune, after warning the owner to look out for any reaction, and the same again when giving the virus and serum 14 days later.

It seems to me, however, that the technique of this immunisation process will bear further discussion with the object of rendering it more practical from various points of view—particularly in regard to the two points mentioned, *viz.*, that of finance, and where the procedure is complicated by a violent reaction after the first inoculation.

Discussion

Mr. R. B. Nelder observed that, with regard to the condition in the mouth region of spaniels, good results were obtained by drying the lesions with wool and applying ointments containing resublimed iodine. He considered the treatment of hæmatoma of the ear-flap should be carried out in hospital for a fortnight. After opening the swelling he stitched through the ear flap.

Mr. Fraser said that the treatment of hæmatoma of the ear was not difficult if the swelling were opened and the cavity packed with tow. With regard to the Laidlaw-Dunkin distemper vaccine, the technique advised was all right from a laboratory point of view, but was hopeless in practice. Many dogs showed no reaction to the vaccine, and he wondered if no reaction meant no benefit.

Mr. Blackwell remarked that the cavity of hæmatoma of the ear should be packed with rough tow after dressing with liq. iodi. fortis.

Mr. Bloye, referring to discharge from the ears, said that in some cases of persistent discharge the cause was ulceration at the edge of the drum and that a weak sulphate of zinc solution often produced good results. After opening recent cases of hæmatoma he inserted two or three stitches and bandaged the ear flat back on the head. In old hæmatomata, pressure prevented the edges from sticking.

Mr. Masson stated, with regard to the mouth condition, that he thought it was a gangrenous type of eczema. One frequently met with bullæ somewhat similar to those seen in follicular mange. He found the best treatment was to keep the parts dry by frequently applying a proprietary preparation of iodine over the parts, so that the saliva ran off.

The so-called "canker" often took the form of a weeping eczema, and should be treated as such. Another condition was where one met with a thick white discharge and in such cases one usually found that there were granulations or papillomata in the ear. Where there were deep-seated papillomata he had found the only successful line of treatment was to lay open the ear under an anæsthetic and apply the actual cautery. A large slough would come away and the ear heal up, and one had difficulty in finding any scar afterwards. It was a very vascular operation.

In the treatment of hæmatoma he opened the swelling from end to end, pinched off the bleeding vessels, thoroughly removed any clots or coagulated fibrin, inserted two or three sutures, and bandaged the ear with a "many-tailed" bandage, laying the ear over the poll one day and downwards next day, and so on till cured. He did not experience much difficulty if the ear was kept still.

Major Ascott said he was astonished at the difficulty experienced by some in connection with the treatment of hæmatoma of the ear flap. The hæmatoma should be opened from end to end. Blood clots should be removed, and then, having applied a strong astringent, the cavity should be packed with tow.

He remarked, as a matter of interest, that he had seen a hæmatoma on one of a mare's ears, and later on the same animal had a similar swelling on the other ear. The contents of the swelling in this case were sero-sanguineous.

He thought moist eczema was often a secondary condition.

With regard to distemper immunisation, although the dogs perhaps did not suffer as severely as unvaccinated animals, break-downs of immunity occurred. Asking at what age members vaccinated dogs, Major Ascott said he thought that Major Dalling recommended that it should be carried out at four months of age. Personally, he usually vaccinated the larger breeds at 3½ months and small dogs, such as Pekingese, at five months old.

Mr. R. H. Smythe, referring to the condition of the lower lips, said that follicular mange was common in this region in spaniels and that it was often associated with similar lesions at, and around the root of, the tail. The tail lesions often appeared later, even years after the mouth lesions. A similar condition in which the lesions contained pus was associated with *Spirilla* from

the mouth, and he thought the foul smell might be due to this organism. A successful treatment for the latter condition was to dry the part with spirit, paint with iodine, wait a few minutes for this to dry, and then paint with "new skin." In this way a firm waterproof coat was furnished. After a few days the "new skin" should be washed off with amyl acetate.

In chronic discharging ears he found the operation useful in which a triangular piece, including the cartilage, was removed from the base of the ear. The skin should be sutured to the lining of the ear. The discharge could then escape. The appearance of the ear was not destroyed. A good dressing to apply was one containing bismuth carbonate, oil of cade, and oil.

When hæmatoma occurred in a large ear, he punched a hole right through the ear near the end, with a bull punch. It took about a month to heal, but the skin closed over well. Most of the discharge took place from the outer surface of the flap. He bandaged the ear for a day or two. In collies the ears could be kept still by tying the hair over the top of the head and he had even stitched the ear tips together.

In breakdowns following the use of distemper vaccine he had not seen nervous symptoms.

The Reply

In reply to the various speakers, Mr. Radford said that following operations for hæmatoma, keeping the animals in hospital for treatment added considerably to the cost of the case. His experience was that they took more than a fortnight to heal. When these swellings were opened in greyhounds they often bled badly.

Dogs dying from distemper usually did so through the complications. He agreed with Mr. Smythe's remarks *re* spaniels and he had also seen the condition in terriers.

CLINICAL CASES

Mr. Blackwell described a case in which a three-months-old Guernsey calf had an abscess in the umbilical region containing chylous material. When a finger was introduced into an opening near the umbilicus it could be inserted to its full length. The chylous material escaped in about half-pint quantities. The opening had closed with treatment and the calf recovered.

Mr. Fraser mentioned a foal which was apparently well until about a week old, when it began to pass blood from the urinary passage. In about a quarter-of-an-hour a wineglassful of blood would escape from the bladder. Then after a few days blood commenced to escape from the umbilicus. The urine became gradually clearer and then the joints became swollen. He had not previously seen blood in the urine in these cases. The animal died in the end as in an ordinary case of navel-ill.

Mr. Watkins referred to some outbreaks of tuberculosis in poultry, and said that in the same birds he had found air sac mites. He wondered if it were possible that mites which had been living in association with lesions of tuberculosis could be coughed up and thus affect other birds with tuberculosis, by carrying the infection.

Major Ascott described the case of a bulldog which developed a large swelling in the thyroid region. The swelling, which contained 10 or 12 oz. of pus, was opened and dressed in the ordinary way. It healed, and three weeks later there was a larger swelling in the same place. It was opened again, and this time it contained only mucoid material. He removed the lining of the cyst as thoroughly as possible, but it developed a third time. Opening was again practised and the cavity was painted with pure carbolic acid. This effected a cure. Speaking of the fillet operation for greyhounds' digits, he said this had been spoken of as a new operation. He was rather surprised at this, for he had known and performed the operation for 38 years.

Mr. R. H. Smythe said he had seen similar cysts in greyhounds. These cysts sometimes disappeared spontaneously. They interfered with racing. He had opened some of them and had exposed large vessels in doing so. One dog, which developed a cyst that did not respond easily to treatment, was eventually cured by a friend of his, who pushed a packing-needle through it carrying a string seton, which was left in position for a time.

He had seen a litter of Alsatian puppies which developed so-called "honey cysts." These cysts contained a semi-gelatinous material.

Mr. Thwaite mentioned a litter of puppies with enlarged thyroids. The pulse rate in these animals was in the region of 200 per minute.

At the conclusion of the meeting votes of thanks were accorded to the President for conducting the meeting, and to the essayist for presenting his paper.

S. J. Motton, *Hon. Secretary.*

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YORKSHIRE V.M.A.*

EXCURSION TO THE SLEDMERE THOROUGHBRED STUD

The summer meeting of the Yorkshire Division on August 17th took the form of a visit to the famous Sledmere thoroughbred stud, by kind permission of Sir Richard Sykes. The party numbered about 30 and included Mr. A. H. Watson (President), Messrs. J. W. Procter, T. C. Hall, W. A. Campbell, W. Crawford, R. Hayes, J. B. McKinna, R. S. Smyth, Simpson, J. Gillespie and F. C. Scott, together with their friends, mostly ladies.

The party proceeded by motor coach from Leeds and at York lunch was taken. Sledmere was reached early in the afternoon. The yearlings were paraded for inspection, and, as each animal was viewed, Mr. Adrian Scrope gave particulars as to pedigree, etc. Very consider-

* Received for publication, September 24th.

able interest was evinced and much speculation as to prospective prices at the forthcoming Doncaster sales was indulged in by the members. The cream of the thoroughbred industry was thus seen under ideal conditions.

Prior to leaving Sledmere, the church was visited by many members, while others admired the natural beauties of the Sledmere grounds. The party then proceeded to Driffield, where tea was taken at the invitation of the President and Mrs. A. H. Watson. The return journey was made by Warter Priory, where a very pleasant hour was spent viewing the beautiful grounds, the choice flower gardens and the extensive ranges of glasshouses. The party returned to York and there broke up: everyone returned satisfied that a very enjoyable day had been spent.

The members were indebted to Mr. J. W. Procter for his services in arranging the visit to the Sledmere stud and the grounds of Warter Priory.

S. Sharp, *Hon. Secretary.*

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

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DIARY OF EVENTS

Oct. 15th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, at 4.30 p.m.

Oct. 16th.—Meeting of the Derbyshire Division, N.V.M.A., at Derby.

Oct. 18th.—Meeting of the Western Counties Division, N.V.M.A., at Taunton.

Oct. 19th.—Joint Meeting of the Mid-West and South Wales Divisions, N.V.M.A., at Cardiff.

Nov. 1st.—Annual Dinner and Dance, Central Veterinary Society, at the May Fair Hotel, Berkeley Street, W.1.

Nov. 2nd.—Annual General Meeting and Re-Union Dinner, R.A.V.C. Old Comrades' Association, Anderton's Hotel, Fleet Street, E.C.

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THE "INTERNATIONAL" FROM A WOMAN'S POINT OF VIEW

The International Veterinary Congress in New York turned a pleasant countenance on the wives, "the sisters, the cousins, and the aunts" of the overseas members. If the phrase "right royally" is permitted in democratic America, it describes our entertainment, even unto the nickel for our subway fare. To spend a week in the Waldorf Astoria Hotel is, in itself, a memorable experience.

Our first function was a Luncheon in the Sert Room where, in a beautiful setting, we were fed physically and mentally. We heard some good speaking, one specially interesting speech being given by a woman aviator.

After that, our activities were varied and strenuous. We visited one big store where a dress parade was held for our entertainment. We had a long day driving through the "up town section," along Riverside Drive, where dwell the millionaires; past "the coloured section," into the Zoological Park where we were kindly received by Dr. Blair; then on to the many-coloured ten-million-dollar park, known as "Playland," where we viewed a special firework display—" and so to bed."

The tour of the Rockefeller Centre—a building which is beautifully modern in line and colour—was packed with interest to us. Here we witnessed a film show and a really exquisite ballet. We were conducted through the National Broadcasting Studio; saw New York from the river, and from the 102nd storey of the Empire State Building; viewed Broadway at night and passed through Chinatown and the Ghetto, our few spare hours being filled in with dances, a banquet and a reception—all forming a memorable experience.

M. N.

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PERSONAL

Major Hicks and Lady Student Injured in Motor Accident.—We regret to record that a contributor to this issue of *The Record*, Major T. Hicks, M.R.C.V.S., of Sleaford, Lincs., and Miss Le Lackeur, 22, a veterinary student, were admitted to Grantham Hospital, recently, suffering from serious injuries sustained in a motor smash at Swaton cross-roads, two miles from Billingborough. They were in a broadside collision with a car driven by Mr. W. T. McIvor, a magistrate, of Oxton, near Birkenhead.

Mr. McIvor, accompanied by his wife, was travelling along the main road from the East Coast towards Grantham.

Miss Le Lackeur, the worst sufferer, lies in a critical condition with a fractured skull and other injuries, while Major Hicks sustained broken ribs, a damaged wrist, and a severe scalp wound. The latter, we are glad to state, is progressing well.

Both cars somersaulted and ended in the ditch. Although suffering from shock and multiple abrasions, neither Mr. or Mrs. McIvor was seriously injured. Both cars were badly smashed.

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Johannesburg Thanks Colonel J. Irvine Smith.—The Public Health Committee of the City Council proposes that the thanks of the Johannesburg City Council under the seal of the Council be accorded to Colonel J. Irvine Smith for his zeal and ability in protecting the Council's interests during the passage of the Livestock and Meat Industries Bill through Parliament.

Appointment.—Mr. F. Addison, M.R.C.V.S., B.Sc., D.V.S.M., has been appointed Assistant Veterinary Officer for the City of Sheffield.

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On Leave.—The following Colonial Service Veterinary Officers arrived on leave during September: Mr. H. S. Purchase, 33, Hagder Lane, Watford, from Northern Rhodesia, and Mr. W. C. L. Orr, 100, Main Street, Strabane, N. Ireland, from the Gold Coast.

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Presentation.—*The Belfast News-Letter*, of recent date, states that "the notable services rendered by Mr. Samuel Bailie, M.R.C.V.S., of Newtownards, not only to that town but to many parts of the Counties of Antrim and Down, were fittingly recognised at an informal gathering held at the residence of Mr. Bailie, when he was presented with a wallet of notes from his friends. At the Royal Dublin Show held in the spring of last year, Mr. Bailie was injured by a horse which broke loose in the paddock, and he was for some months a patient in the Ards District Hospital. His recovery from that illness was accepted by his friends as an opportunity to present him with a token of their regard and esteem, and to mark the fact that he has rendered over fifty years service—a great deal of it voluntary—to animal owners in the neighbourhood."

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R.C.V.S. OBITUARY

Borman, Charles Edward. 83, Huntly Grove, Peterborough. Graduated London, April 25th, 1864; died October 3rd, 1934, aged 92 years.

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The Late Mr. William Marshall, M.R.C.V.S.

Mr. William Marshall, of Huntly, Aberdeenshire, whose death was recorded in our last issue, was the fourth son of the late Mr. John Marshall, J.P., Drummore, Wigtownshire, and a brother of Mr. Matthew Marshall, the well-known Shorthorn and Clydesdale breeder of Bridgebank, Stranraer.

He was for many years veterinary surgeon to the City of Aberdeen, and during the war he held commissioned rank in the Royal Army Veterinary Corps in France.

He leaves a wife and two daughters.

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ARMY VETERINARY SERVICE

Northern Command, India

Colonel H. C. Dibben has been appointed Deputy Director of Veterinary Services, Northern Command, India.

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R.V.C. RE-BUILDING FUND BALL

A ball is to be held under the patronage of H.R.H. The Duke of Gloucester, in aid of the Royal Veterinary College Re-building Fund, at the Town Hall, Cricklade, Wilts., on Friday, January 4th, 1935. The Committee includes, among others, The Principal, Professor Sir Frederick Hobday, C.M.G., F.R.C.V.S., and Mr. Tom Walls.

Further information can be obtained from Mr. John Richards, c/o, The Royal Veterinary College, London, N.W.1.

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FOOT-AND-MOUTH DISEASE

It was announced by the Ministry of Agriculture and Fisheries on Monday night that the existence of foot-and-mouth disease had been confirmed among pigs at Staden, near Buxton.

An order, it was stated, had been issued, which was now in force, extending for a further five miles around Buxton, the area subject to restrictions in regard to the movement of animals already in force in respect of the recent outbreak at Totley, near Sheffield.

The area now subject to restrictions lies in the West Riding of Yorkshire, Derbyshire, Nottinghamshire, Cheshire and Staffordshire.

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Tolerance of the intravenous injection of carbolic acid in the Horse.—Mattia Sforaza, in the April number of *Profilassi*, has recorded that the daily injection of 20 to 25 grammes into the veins is well tolerated by the horse.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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REPORT OF THE CATTLE DISEASES COMMITTEE, ECONOMIC ADVISORY COUNCIL

To the Editor of The Veterinary Record

Sir,—The publication of this report has occasioned considerable fear and trepidation, yet there is apparent in its train one great blessing: the profession has been awakened to a consciousness of its own existence.

Not only has a Government Committee impugned the honour of the part-time inspectorate, but individuals are to be affected in a way that hits them where they feel it most.

In all the reports and correspondence that have appeared in *The Veterinary Record*, there has scarcely been one constructive suggestion until the account was published, in last week's number, of the North Wales Division, N.V.M.A. meeting at Llandudno. Let me quote: "The welfare of every member of the profession must be kept in mind, and no section of it must be pushed forward at the unfair expense of another." That being so, why should the part-time work be the preserve of a certain proportion of practitioners only? One would not have thought that practitioners holding part-time appointments would have actively opposed the inclusion of their neighbouring brethren in the proposed work of routine inspection, but such has occurred to the knowledge of at least one division of the N.V.M.A.

It is news to me that the financial return from the part-time work they have had in the past, made the difference between profit and loss to any considerable number of practitioners. I can understand it in the case of elderly men, to whom increasing age denies their former activity. As a student, I once spent four months with a practitioner *cum* part-time inspectorate, and not once, to my knowledge, did he have an official call. This experience is not perhaps unique, for is not the work of a part-time inspector of a skeleton nature? When, however, his work is made to include the bi-annual examination of all dairy cattle, as has happened in certain counties, it is a different matter. The latter is all new work, and extra money. That it should remain the perquisite of men allotted districts when the work was of a sporadic nature, is inequitable. To decry the appointment of a whole-time service, and at the same time oppose an extention of the benefit to any resident practitioner, is hypocritical and selfish.

Again, "It is difficult to see what we can do. And our difficulty is rendered the greater by the chronic apathy of many in our ranks." The latter hits the nail on the head. It is apathy that has been and is, the curse of our profession. It is not difficult to see what to do. We must collect our ranks, and organise. There should not be a single M.R.C.V.S. outside the body of the N.V.M.A.: with the full weight of the profession it could become a more formidable fighting force. If, for instance, as a profession we considered a right was being denied us, there are 700 M.P.s to be written to personally by every veterinary surgeon in the respective constituencies, with an object plainly stated and backed by reasons why. When a subject is broached to 700 people in a representative capacity, there will be quite a few found to stir things up, in a quiet way.

So much for effective organisation: precious little is obtained nowadays without well-directed effort.

The appointment of a whole-time officer for each county is wisely sought. Personally, I hold that the routine inspection of stock should be carried out by practitioners; under the direction of such officer. Where we are over-borne on this issue, I would urge that the number of whole-time officers be restricted to a maximum of one per 15,000 head of cattle. This would allow an average of 600 examinations per week over the working year. There would not then be the same incentive to divert an assistant officer's energies to channels rightly the concern of the legitimate practitioner. Otherwise, a pushful C.V.O. will seek to surround himself with as large a staff as possible and, when routine examinations are well in hand, look for *kudos* by encouraging his subordinates to enlarge the scope of their activities and tone down, in the farmers' eyes, the inquisitorial nature of their recurrent visits. Besides, will not the farmer develop the view that, as he is helping to finance the scheme, the full services of the veterinary staff should be at his disposal?

Let no one be under any illusion as to the effect an official veterinary staff will exercise on country practice. The standard of living of all practitioners in such areas must inevitably be lowered and their number tend to decrease. It will become increasingly hard to get men to take over the smaller practices rendered vacant by the death of elderly members. With the consequent occurrence of derelict practices, extra work will accrue to the remainder, and possibly recoup them; since there will always be a demand for the skilled and ever-ready veterinarian, in a country such as ours. But it will also afford an opening for the quack, if the increase in radius does not coincide with renewed prosperity in livestock trade. That it will redound to the ultimate evil of practitioners generally, is debatable.

The effect on veterinary science and the profession, as a whole, of a greatly increased ratio of officials to practitioners is questionable. One may thus obtain more concerted action in disease investigation, but the surrender by our graduates, in greatly increasing numbers, of liberty of action and independence generally, bodes ill. What should be a vocation developing initiative and resource and giving full play to the exercise of one's professional talents, too often becomes solely a means of livelihood, when a man's energies are restricted within the narrow limits of a routine job in which advancement is not necessarily the outcome of zeal.

In every town in Great Britain is a butcher's shop. Now a tubercle bacillus is a tubercle bacillus, and John Citizen no more wishes to eat it with his meat than to drink it in his milk. Certainly, babies are not fed on steak or pork, and it is the risk to children that really rouses the public, but were the dangers of eating uninspected meat as vividly portrayed as the risk of drinking milk from uncertain cows, there would be an instant demand for safeguard. Forty per cent. of our cows tuberculous, yet but 5 per cent. end their career in the knacker's yard. Who cares? With effective organisation and well-directed effort, there is in meat inspection a definite call and assured income for every veterinary practitioner; leave others now concerned in this work to their legitimate spheres.

I do not fear for the future of practice in a land like ours, but it must not be forgotten that we rise and fall with the tide of agriculture. When it ebbs, so will our fortunes:—

"And we must take the current when it serves,
Or lose our venture."

Which means that the issue lies with us. Union gives strength, without it we will continue to be impotent, and have our destiny shaped for us. For a start then, let every M.R.C.V.S. join the the national association, and take an active part in its functioning by at least attending or endeavouring to attend, the few meetings held in the twelvemonth. Rest assured our profession will find the level it merits.

N. F. Pollock,

4, St. Mary's Road,
Cromer, Norfolk.

October 5th, 1934.

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CONGRESS DIABETES MELLITUS CASE

To the Editor of The Veterinary Record

Sir,—It may interest those who attended the Congress here and saw the case of diabetes mellitus to know that the dog died in the middle of September.

Under insulin treatment the dog maintained the condition seen at the Congress.

I understand that death took place suddenly, the dog dying whilst sleeping in an armchair. Unfortunately I was on holiday at the time and the opportunity of making a *post-mortem* examination was lost.

I am, Sir,
Yours faithfully,
Geo. F. Boddie.

Royal (Dick) Veterinary College,
Edinburgh.

October 8th, 1934.

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HYSTERECTOMY AND SPLENECTOMY IN THE BITCH

To the Editor of The Veterinary Record

Sir,—It was with great interest that I read Mr. Barrett's Clinical Communication on "Hysterectomy and Splenectomy in the Bitch," and I congratulate him on his thorough aseptic and operative technique. I agree with the advisability of performing an exploratory laparotomy but wonder whether it was necessary to perform splenectomy, as I am rather doubtful as to the pathological significance of the condition of the spleen. I have not infrequently seen, on *post-mortem* examination of dogs, these hæmorrhagic enlargements, varying from the size of a

pea to that of a walnut. I have always understood that they are of no clinical importance and have discounted them as being responsible for any clinical symptoms. According to the literature of pathology and my own experiences, neoplasms of the spleen are very rare.

With regard to the large size of the organ, I wonder whether this was a physiological or a pathological condition. As we know, the spleen is an organ capable of great variation in size, owing to the fact that its chief function is that it is a storehouse for red blood corpuscles not required for the general circulation; therefore its size varies with the number of red blood corpuscles stored in it. When the body is resting it will, of course, be large; during exercise and after severe hæmorrhage it will be small. Harvey, in an article in *The Veterinary Record*, November 23rd, 1929, says: "It appears that in all animals there are two spleens to be considered, the physiological (living) spleen and the *post-mortem* or dead spleen . . . thus the living spleen of the cat may be four times the size of the dead spleen. The organ empties itself during the death agony and also during exercise and work." Quoting from Samson Wright, he says that it appears that a quarter of the total red cells of the body may be stored in the spleen and only become available in time of stress, and states that he palpated the spleen of particular horses three or four times within a day or two and found considerable variation in size and relations.

Sisson gives the weight of the spleen of the horse as varying from about one to eight lb., and states that the latter figure may be exceeded without apparent signs of disease.

Taking these facts into consideration, one wonders what part the spleen played in producing the symptoms presented by the bitch, and to what extent the good results were attributable to the splenectomy. Nevertheless one admires Mr. Barrett's skill in performing so successfully this "more than a little ambitious" operation. On the other hand, one is left with the question of whether the condition of the spleen justified the "somewhat hazardous undertaking."

Yours faithfully,
J. McGhee.

Clarence House,
Russell Street,
Gloucester.
October 9th, 1934.

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CALCIUM TREATMENT OF MILK FEVER

To the Editor of the Veterinary Record

Sir,—Since reporting the first milk fever cases treated by the Greig method the writer has to report continued success.

The following case, recently treated, is worthy of notice.

On September 6th, 1934, a cow took the first prize for in-calf cows; on September 7th, she had calved and went down with milk fever; she was treated by the subcutaneous injection of calcium gluconate (Sandoz)—280 c.c. of the 10 per cent. solution. On September 13th she was shown and took first prize for newly-calved cows.

Yours truly,
Oscar Stinson.

Charnwood,
Appleby,
Westmorland.
September 22nd, 1934.

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The Editor acknowledges, with thanks, the receipt of the following:—

Communications from Captain J. C. Coleman (Swindon), Mr. R. M. C. Gunn (University of Sydney), Captain A. W. Noel Pillers (Liverpool), Mr. E. L. Taylor (Weybridge) and Captain W. Tweed (Sheffield).

Diseases of Animals Acts.

SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic§ Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 16th to 30th Sept., 1934	12	13	2	69	2	6	19	63	21
Corresponding period in									
1933	15	16	—	—	3	4	5	21	8
1932	10	15	1	88	6	6	2	45	13
1931	15	15	2	176	3	3	3	83	36
Total 1st January to 30th September, 1934	286	325	9	653	103	171	452	1,203	732
Corresponding period in									
1933	217	246	65	6,123	115	192	280	1,070	650
1932	263	326	10	950	107	167	169	1,295	629
1931	368	412	96	10,483	117	213	214	1,467	617

Note.—The figures for the current year are approximate only. § Excluding outbreaks in Army Horses.